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Canadian Paper and Pulp Men Meet at Montreal

Reports Show That in Practically Every Department of the Industry More Or Less Substantial Progress Towards Recovery Has Been Made, But Cheerfulness Was Somewhat Repressed by Failure to Sustain the Moderate Increase in the Price Schedule of Newsprint for 1935—Brig.-Gen. J. B. White Reelected President

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., January 25, 1935.—The annual meeting of the Canadian Pulp and Paper Association, held here today, was highly successful from the point of view of numbers attending and the members had the gratification of hearing reports showing that in practically every department of the industry more or less substantial progress towards recovery had been made. One factor that cast a shadow over the proceedings was the situation in connection with the news print industry. Had plans for a moderate increase in the price schedules for 1935 been sustained, undoubtedly this gathering would have been the happiest one in years. Unfortunately, almost on the eve of the meeting came news of the collapse of the new price schedules and the reversion for the time being to the 1934 rate of $40 per ton. This caused a certain amount of apprehension to be manifested in the attitude of the members. The fact that Premier Taschereau had announced that action would be taken at this session of the Quebec Legislature to remedy the situation was received with mixed feelings. While no reference was made to this in the public discussions, private conversation among the members revealed some humiliation that the industry had shown itself incapable of managing its own policies, and that government interference in the management of this great private industry should have been invited by the turn of affairs.

The meeting was presided over by Brigadier-General J. B. White, who later was re-elected president for the ensuing year. Preceding the annual meeting on Wednesday and Thursday were successful meetings of the Technical and Woodlands Sections, at which many informative papers on technical subjects were read and discussed.

The President's Address

Brigadier-General J. B. White, the president, in his opening address, said:

A survey of industrial and business conditions during the past year shows that Canada made considerable progress towards recovery and at the close of the year the general situation was more encouraging than it has been for a long time past. The usual business indexes all indicated an upward trend despite lags and set-backs here and there, and although progress may be slow an advance has been made and a feeling of greater confidence now exists, which is an encouraging factor in the general outlook.

For the pulp and paper industry there has been an increase in the demand which has enabled the mills to operate on higher schedules throughout most of the year and production in most grades of pulp and paper was greater than in the previous year although the mills were by no means able to operate at capacity. In newsprint, which is the largest branch of the industry, the production for the year was greater than in any year since 1929. Unfortunately prices were still depressed and operations were unremunerative so that little benefit accrued to the mills by reason of the increased output. Efforts have been made throughout the year to adjust the difficulties of the newsprint situation but there are many problems yet to be faced.

The woodpulp branch of the industry did not show any material improvement during the year. While there was an increased output of pulp for the use of domestic mills, due to the greater production of paper, the exports of pulp were slightly lower than in 1933, conditions in foreign markets being still uncertain and exchanges unstable. Efforts of the pulp producers in the United States to stabilize conditions in that market through the Code set up for that purpose, attained a large measure of success and Canadian producers have been able to cooperate with the Executive Authority in respect to sales in that market.

There was a better demand for book, writing and fine papers during the year which was a reflection of the improved situation throughout the Dominion. At the same time there is a considerable excess productive capacity in these grades in consequence of which the mills were not able to operate on very satisfactory schedules, although there was an improvement over the previous year. As there is practically no export business on these grades of paper the mills depend mainly on the domestic market and constant efforts are made to produce a "made in Canada" paper for every requirement of the Canadian consumer.

For wrapping papers, paperboard, boxes and cartons there was also an increased demand during the year. Consumption of these grades is influenced largely by general

(Continued on page 16)

New Carton Machinery Ordered by Marathon

Equipment Costing Approximately $12,000 to be Installed at No. 2 Converting Plant at Wausau, Wis.—Machinery, Scheduled for Delivery March 1, Will Require Two Months to Erect and Place Into Operation—Popular Novelty Lines Being Added

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 28, 1935—Orders for approximately $12,000 worth of carton machinery have been placed by the Marathon Paper Mills Company for installation at its No. 2 converting plant at Wausau, Wis. It will replace a large amount of ice cream carton equipment moved to its recently remodeled No. 1 plant. Delivery is scheduled for March 1, and it is expected two months will be required to erect the machinery and place it in operation.

With the ice cream packaging concentrated in No. 1 plant, the company is ready to operate it on a 24-hour schedule when the summer demand starts. The present schedule includes one 8-hour shift. The No. 2 plant is operating 24 hours with a small crew. Approximately 125 persons are on the payroll at present in the two units.

Since the Marathon company discontinued its unit at Baltimore in 1931, the Wausau carton division has been congested, but the situation was relieved when the company acquired a plant several months ago originally designed for a bag mill. This unit was designated No. 1 plant, and has been equipped almost exclusively for the ice cream carton department. This left opportunity for much needed expansion. Novelty lines are being added. One of those attracting a popular demand is a combination nut cup, place card and tally card. Roll and sheet stock from the main Marathon mill at Rothschild is used for all products made.

Offices of the Wausau carton division are now located in plant No. 1 with Oscar O. Eggebrecht as manager. Charles Mader, superintendent, will continue his location at No. 2 plant for the time being.

Safety Conference Arranged

Spring conferences of the Fox River Valley and Lake Shore Safety Council will be resumed, according to plans made by the executive council at a meeting at Appleton last week. The 1935 gathering will be held at Sheboygan, Wis. within a few months, in acceptance of an invitation from that city. The attendance usually is approximately 1,500. A sectional meeting will be devoted to the pulp and paper industry as usual. Safety meetings of employees of the mills at Neenah and Menasha, Wis., will be started February 4. They will be held at the Memorial building at Menasha weekly for five weeks. Executives of a number of paper mills in the Fox River Valley will be the speakers.

Roy H. Kelly Honored

Roy H. Kelly, superintendent of the Marathon Paper Mills Company at Rothschild, Wis., was given a testimonial dinner at Hotel Wausau, Wausau, Wis., last week, attended by associates of the Marathon mills, and mill executives from many points. The dinner was held to present him with the L. D. Post award, a gold watch, for making an outstanding contribution to the paper industry. This contribution was his service as president of the American Pulp and Paper Mill Superintendents Association in 1932.

F. C. Boyce, superintendent of the Wausau Paper Mills Company, Brokaw, Wis., known as the founder of the association, made the presentation. Mr. Kelly learned paper making under the supervision of Mr. Boyce while the latter was employed at Oconto Falls, Wis. He joined the Marathon organization in 1912, and is considered one of the outstanding superintendents. Mr. Boyce, during his talk, gave interesting reminiscences of the paper industry, pointing to the early days when hemlock was bought at five dollars a cord as compared to twenty dollars today, and commenting on the machinery and scientific methods used today in contrast to those early times.

Mr. Kelly also was the object of tributes for his civic leadership. He was praised for his work as chairman of the county board of Marathon county by E. J. Benson, vice chairman of the board, and as head of the Marathon county relief administration by Louis Pauls, director of relief. Greetings also were extended by L. H. Breyfogle, of Kalamazoo, Mich.; Barney Benson, of Chicago; George Maye, of Appleton, Wis.; W. J. Kyle, of Chicago, and Grover Keeth, Wallace Shymanski and W. J. Rogan, of Wausau.

Among others attending the dinner were P. D. Bradley, of DePere, Wis.; F. J. Timmerman and M. J. Ketter, of Green Bay, Wis.; James Foxgrover, of Kalamazoo, Mich.; C. H. Whipple, of Beloit, Wis.; W. H. Burns, of Appleton, Wis.; Sam Calligher, of Detroit, Mich.; R. D. Page, of Newark, N. J.; Abbot Glick, of Sheboygan, Wis.; F. E. Fitzgerald, of Kalamazoo, Mich., and Thomas Gillespie of Philadelphia.

News of the Industry

Dr. George Munro, research associate and instructor in physics at the Institute of Paper Chemistry, Appleton, Wis., will leave February 1 to accept a position in the production department of the Champion Coated Paper Company, Hamilton, Ohio. He will be succeeded by Dr. Phillip Nolan, of the University of California. Norbert L. Cochren and R. R. Walton, engineers with the Container Corporation of America, Chicago, recently spent a day visiting the Institute.

The Patten Mimeo Credit Union, made up of employees of the Patten Paper Company, Ltd., Appleton, Wis., now has a membership of 60, according to a report at the annual meeting. A dividend of six per cent was paid on the stock. Roman Schomisch was elected president for the ensuing year.

William E. Buchanan, vice president and sales manager of Appleton Wire Works, Appleton, Wis., was awarded the annual distinguished service medal recently by the Appleton Junior Chamber of Commerce. The award is made to the young man who does the most outstanding work of a civic nature in the city during the year. Mr. Buchanan has been identified with many public projects.

Dr. Henry Merritt Wriston, president of Lawrence college and director of the Institute of Paper Chemistry, Appleton, Wis., has been elected president of the Association of American Colleges. This honor came to him at the recent convention at Atlanta, Ga.

The engagement is announced of Carleton Root, technical assistant at the Institute of Paper Chemistry, Appleton, Wis., and Miss Mamie Chall, also of Appleton.

Chicago Paper Market Conditions Satisfactory

Various Grades of Fine Paper Continue to Move Freely—Demand for Kraft Papers and Specialties Fairly Persistent—More Inquiries Received for Paper Board—Substantial New Outlets Provided—Paper Stock Situation Comparatively Steady

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., January 28, 1935—Market commentators give the impression this week that the Chicago paper industry is in about as satisfactory a position as it has been for some time. Suspension of the open filing system for the four weeks period has evidently had little or no effect in the Chicago market as the kraft representatives continue a "gentlemen's agreement" which is reported as working out satisfactorily. Kraft demand is reported improving and those branches of retailing which use kraft products are almost universally reporting better business. Ground woods are reported as lagging somewhat in comparison with other grades and this situation is partially ascribed to the disturbing newsprint situation, which of course reflects on the ground wood market.

Fine papers reported a satisfactory week. Sales representatives out on the territory found outlying business to be even better than in the Chicago area. Bonds and ledgers encountered a firm market and increasing demand. Books and covers, particularly the latter, were said to have forged ahead during the seven day period. The board market found more inquiries and obviously more actual orders if comments of local executives may be taken as the criterion. Substantial outlets have been provided for paper board by worth-while surveys relative to new uses. The waste paper market in Chicago is reported as about as stable as any in the country, the local outlets reporting no particular disruption following changes of the past month.

Loss Limitation Provisions of Code

George G. Cobean, vice-president of the J. W. Butler Paper Company, was in Washington last week at the public hearing conducted by code authorities relative to the loss limitation provisions of the code. Mr. Cobean, a member of the code authority, is reported to have given concise and complete testimony relative to the benefits to the paper industry of this provision of the code exactly as in its present form. He believed, according to reports, that elimination of the loss limitation provision would work a definite hardship upon all, and particularly the small dealer. The hearing on January 15 was based on efforts to extend until June 16 the requirement of the code that merchandise should not be sold below replacement cost with an added allowance for actual wages of labor. Mr. Cobean, it is reported, showed how conservative inventories had been built up through confidence in the above mentioned provisions and stated the possible effects if the loss limitation provisions were dropped.

Peoria Paper House Formed

Three well known Quincy, Ill. paper merchants were recently reported as the incorporators of a new paper firm in Peoria to be known as the Peoria Paper House and to handle a general line of fine and coarse papers. The new firm has been merged with the Blair Paper Company of that city and the entire staff of the latter company has been assimilated into the new firm under the new organization. The three paper executives are E. A. Danhorst, well known to the trade through code activities, Mac Irwin and H. G. Oelkaus. The Peoria Paper House will occupy a completely remodeled building with five story frontage on North Water street and with plenty of railroad siding facilities. All of the members of the firm and the sales force of the Blair company have had many years of experience in dealing with both fine and coarse papers.

Wage Earnings Increase

The marked increase in industrial activity in the seventh federal reserve district is reflected in the report on paper and printing, which gives a very good account of itself in relation to the other nine industrial groups reported. For the week of December 15 a total of 517 firms reported to the district listing 63,169 wage earners and earnings of $1,552,000. The number of wage earners increased as of December 15 over November 15 by 1.3 per cent while the earnings increased over the same period of time by 3.9 per cent. This compares with an increase in wage earners of 5.3 per cent and of earnings of 11.4 per cent for the entire group of ten types of industries.

Association Activities

Complete weekly analyzations of the paper market and comments on the various developments of the week continue to characterize the Monday meetings of the Mid-West Division of the Salesmen's Association of the Paper Industry. Meanwhile the association is preparing for a record attendance at the N.P.T.A. meetings in New York City in February, with a past president of the association. J. H. Coy, serving as the chairman in charge of transportation to the New York sessions. The association is reported to also be preparing its recommendations for the election of officers which will be held during the annual luncheon event at the Waldorf.

News of the Trade

A bulletin of interest to the paper manufacturing trade has been issued by Fibre Making Processes, Inc., of Chicago, dealing with the new F.M.P. Circulating System for sulphite digestion. The well planned brochure contains a number of illustrations and drawings showing the operation of the new system and also several convincing testimonial records of performances in installations already effected.

The James White Paper Company has added a new paper, White House Cover, to its already comprehensive line of book and cover papers. The new product is manufactured by the District of Columbia Paper Company.

The Falcon Manufacturing Company, of Chicago, has leased the fifth floor of the building at 116 South Clinton street to increase the production of its line of envelopes and paper products. The addition gives the company about three times as much floor space as it formerly had.

To Handle Brown Ledgers and Fines

Paper Merchants, Inc., 140 North Sixth street, Philadelphia, has been appointed an agent in that territory for Brown's Linen Ledger and Brown's Fine, two of the well-known products of the L. L. Brown Paper Company, Adams, Mass.

Boston Paper Market Remains Steady to Firm

Despite Blizzard and Inclement Weather Bonds and Ledgers Are Moving In Moderate Volume —Wrapping Paper Continues Fairly Active—Standard Kraft Quotations Stronger— Request for Box Board Irregular—Paper Stock Situation Unchanged

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 28, 1935—The wholesale paper market here remained steady during the week under review, although the blizzard and inclement weather practically throughout the period lessened the volume of sales to a considerable extent and also interfered with the delivery of merchandise and orders to dealers. The market, however, is in an apparently healthy condition, with the trade generally cheerful. "Even mill men feel fairly happy," said a representative of a large house, in discussing the situation. Bonds and ledgers moved in moderate amounts, considering conditions.

Wrapping paper was sold to a certain extent, although there was little or no business from the retail stores on account of the stormy weather. Notice has been received that the price of standard kraft has advanced one-eighth of a cent a pound. In some quarters of the box board market there was a little more activity, with a greater demand for material for shoe cartons. In general, however, trade was quiet, on account of the storm.

In paper stock, old papers were very quiet, with no change in quotations. The storm possibly interfered with collections, but there is such an abundance of material on hand that this condition would hardly cause a rise in values. In old domestic rags, roofing stock was a little firmer. Slightly higher bids were made for dark cottons under foreign rags, with a few scattering sales in small amounts. Prices abroad, however, are still too high, according to reports, for much business. In bagging and new domestic rags, there was no material change.

Budgetary Control Discussed

Robert N. Wallis, specialist in marketing research with the Dennison Manufacturing Company, Framingham, Mass., was scheduled as the principal speaker at the monthly meeting of the Boston Chapter, National Association of Cost Accountants, recently held at the Boston Chamber of Commerce. His subject was "Reducing Marketing Costs by Planning and Control." The millions of dollars annually wasted by business interests through lack of properly co-ordinated efforts in selling and marketing activities has long been a serious problem. Mr. Wallis has had much recent experience working out planned economies along these lines.

A. C. Farrell, director of sales and distribution accounting, of the Dennison Company, is to be the speaker before the Boston Chapter of this association on March 4. The chapter is holding a series of meetings in its annual educational forum held for the purpose of providing the means for discussion of latest developments in accounting theories and practice. This year the general subject is "Budgetary Control."

News of the Trade

Russell MacLaren, who has been associated with Carter, Rice & Co. Corp., for the last nine years, is now with the Andrews Paper Company, 54 India street, where he will have charge of the order department of both fine and wrapping paper.

Karl Cushing, who has been in charge of the order department of the Andrews Paper Company for the last twelve years, is to be a traveling salesman for the company, handling fine and wrapping paper.

Richard Linsert, advertising manager of the American Writing Paper Company, visited the offices of Carter, Rice & Co. Corp., accompanied by Charles Foster, New England manager of the American Writing Paper Company.

Hyman B. Sterling, as Sterling Paper Company, Minot street, has made an assignment. Harry J. Goldberg is assignee.

Folke Becker Heads Rhinelander

The annual stockholders' meeting of the Rhinelander Paper Company, Rhinelander, Wis., was held at the company's office at 2 P. M. on January 22, 1935. The following directors were elected: Folke Becker, E. A. Forbes, W. D. Brown, A. S. Puelicher, E. A. Korth, A. C. Brown and R. L. Caldwell.

Immediately following the election of directors, the new directors met and elected the following officers: President and treasurer, Folke Becker; vice-president, E. A. Forbes, and secretary, Paul Browne.

All directors are residents of Rhinelander with the exception of A. S. Puelicher who resides in Milwaukee.

Mr. Becker gave a brief resume of the company's affairs for the year 1934 and dwelt some on the prospects for 1935. The Rhinelander Paper Company made a satisfactory showing for the year just closed and has confidence for even a better showing for 1935.

Mr. Becker is now president and treasurer instead of general manager and treasurer, which has been his title for the last few years. Mr. Becker came to Rhinelander in 1925 as a consulting engineer. He finished his work about August of 1925 and the 1st of January 1926 he took over the general superintendency of the mills. He held this position for three years and almost completely rebuilt the mills of the Rhinelander Paper Company. The latter part of 1928 he assumed the general managership of the company, succeeding William Eibel, retired.

Under Mr. Becker's leadership Rhinelander has made remarkable progress and Rhinelander papers have gained an enviable reputation in the trade.

Injunction Against Paper Goods Dealers

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 30, 1935—A permanent injunction was entered on December 7, 1934, in the United States District Court for the Northern District of Illinois against Ben Kranz, doing business as General Paper Goods Company, and Benjamin Plonsky, restraining violations of the provisions in the Paper Distributing Trade pertaining to selling below filed prices.

This injunction was entered by consent of the defendant.

This case was handled by Dwight H. Green, U. S. Attorney, assisted by A. W. DeBirny, Assistant Counsel, Litigation Division, NRA.

Demand for Paper Broadens in Philadelphia

Volume of Sales of Various Standard Grades of Paper Ahead of Any January During Last Few Years—While Zero Weather Slowed General Tempo of Market, Spot Orders Were Helped Materially—Paper Stock Situation Continues Unsolved

[FROM OUR NATIONAL CORRESPONDENT]

PHILADELPHIA, Pa., January 28, 1935.—While the zero weather during the week slowed perceptibly the general tempo in both branches of the paper trade here, it helped materially on spot orders, and the mildness that preceded it caused no apathy among distributors or retailers. Notwithstanding the slight interruption in retail sales this week, it is interesting to note that there was a further broadening in wholesale sales, unequalled in any January in more than three years.

With the sinking of prices of news and mixed paper to exceedingly low levels, so low in fact that there is scarcely a chance of packers eking out a profit in handling such stock, there has resulted drastic curtailment of collections and a consequent decrease in the available supply reaching the market. This, to all appearances, seems to be the only solution for the market under prevailing circumstances. With the falling off of supplies, it is contended that there will be greater buying interest exhibited by consumers, and this, of necessity, will stimulate prices.

Association Activities

The code for the paper trade seems to have passed the primer stage of interpretations—which now have become rulings—and that spells activity. The basic principles of the NRA seem destined to become permanent in some form or other. That is the present outlook, at least. Around these basic principles can be built a complicated, top-heavy, unworkable structure or a clean-cut, workable set of rules or ethics that will be a real business asset to those in the paper trade. The wide-awake Paper Trade Association of Philadelphia has proven its worth in that big task of simplification, and under its untiring efforts the paper trade code has become an actual guide to business conditions, and not merely entanglements of legal phraseology. And to this end, the association realizing the interdependence of those in the trade, is making a determined effort to guide its industry into a permanent code that really works.

The meeting of the Sub-Committee of the Philadelphia Trading Area, which was postponed last week on account of the illness of chairman William S. Wilcox, was held during this week. A meeting of the Fine Paper Division was held on Tuesday, with luncheon at 12:30 in Dufor's Restaurant. President Norbert A. Considine presided. Appointments of those elected to serve on the Commodity Committees will be announced in the very near future.

Invitations have been sent to all members of the association to attend a meeting at the Franklin Institute on Wednesday, January 30, at 8:15 p. m. in the lecture room. James F. Magee, Jr., will speak on the history of paper mills in Philadelphia and vicinity, and will impart some very interesting information on old Watermarks of early American paper mills, a famous collection of which Mr. Magee is the proud possessor.

Opportunity will be afforded those in attendance to inspect the miniature model paper making machine, as well as the exhibit of paper and offer suggestions for making the exhibit more comprehensive and representative of the trade. Prior to the meeting at the Franklin Institute, the Board of Governors will tender a dinner at 6:30 o'clock at the Penn Athletic Club to T. H. B. Smythe and William A. Hentz, immediate and former past presidents respectively, of the Philadelphia Paper Trade Association. Mr. Magee will be guest of honor on this occasion.

Confirmation has just been received from the National Code Authority approving the appointment of Wm. A. Hentz, of the Thos. W. Price Company, and Reginald D. Perry, vice president of D. L. Ward Company, to serve on the Sub-Committee for the Philadelphia Trading Area, also approval of appointment of Mrs. Doris E. Lewis, as secretary of the Sub-Committee for the Philadelphia Trading Area has been confirmed.

Edward A. Keller, vice president and general manager of Garrett-Buchanan Company, and recently elected secretary of the Paper Trade Association, and Nathaniel Saxe, of the Saxe Paper Company, have been appointed on the directorate of the National Paper Trade Association, and will attend the annual convention of the N.P.T.A. as delegates of the Philadelphia Paper Trade Association, representing the fine paper division and the wrapping paper division respectively, of this association.

Those in the trade who have job-lots, close-outs or damaged merchandise for sale have been officially notified that before these can be offered for sale, approval of the Code Authority must be obtained.

On Tuesday last, there was held a meeting of the Code Authority of the National Paper Box Manufacturers' Association in the Liberty Trust Building. Howard E. Beckett, executive secretary, has just returned from Washington, where he attended the price cost hearings. Mr. Beckett states that the matter of sales below cost provision was thoroughly discussed, proclaiming that it would be impossible for the industry to maintain wages unless manufacturers were relieved from cut-throat competition.

Mr. Beckett states that the current year in the paper box industry has opened up with extraordinary demand, and it is expected that large profits will be booked on account of this sudden stimulus. William R. Kreegar, assistant to Mr. Beckett, is on an extended trip, visiting groups of manufacturers on the coast, Texas, Denver, Salt Lake, Los Angeles, San Francisco, Portland, Seattle, St. Paul, and will visit in Chicago, Cincinnati and Cleveland before returning to Philadelphia about the middle of February.

News of the Trade

Patterson & White, Garrett-Buchanan Company and Acme Card Company, representing the paper trade bowling league, have lined up with Poor Richard Club. The games are being played at Hudson Alleys every Wednesday evening, and it is reported that thus far the respective paper house representatives are making a fine showing.

Fire which recently swept the plant of the National Container Corporation, makers of corrugated boxes at Fifty-first near Grays Avenue, routed two hundred workers, and flared up again the day after when containers, thrown out in the street the day before, burst into flames. Firemen remained all night fighting the fire but despite this the containers burned stubbornly.

The Federal Trade Commission announced this week that it had ordered the Diamond Paper and Box Company of Philadelphia to cease misrepresenting itself as the manufacturer of the boxes it sells.

The Commission said the firm was a jobber of fibreboard clothing boxes and was not the manufacturer of a substantial part of the boxes, although it used the stamp prescribed by the commission for manufacturers.

CANADIAN PAPER AND PULP MEN MEET AT MONTREAL

(*Continued from page 11*)

business conditions and is to some extent an indication of the movement of merchandise and commodities. The increased output during the year points to an improvement in the general situation and reflects a greater movement of goods into consumption. This branch of the industry suffered severely from the depression but now finds encouragement in the brighter outlook.

Imports of paper into Canada for the past two years have been lower than for several years past. In 1934, however, the total of such imports was slightly higher than in the previous year and while there was a decline in the imports from Great Britain there was a considerable increase in imports from various European countries. It is again pointed out that Canadian mills are equipped to supply practically every grade of paper used in this country and that the use of Canadian-made products provides employment for Canadian workmen and increases the spending power of the Canadian consumer.

The Association's Activities

The general activities of the Association have been carried on in all branches throughout the year and over one hundred meetings of the various sections and committees were held in the Institute. Four new company members were admitted to the Association during the year, the membership now standing at the highest point ever reached and including practically every pulp and paper company in the Dominion.

Following the formation of the Newsprint Export Manufacturers Association of Canada, office space in the building was provided for the new organization and as a result of the demand for meetings of various branches of the industry, arrangements had to be made for the re-allocation of library space.

The Financial Report as submitted to this meeting by our Secretary-Treasurer reveals some improvement of our position over that of last year. I would like to point out, however, that this has been secured largely through continuation of our policy of maintaining a minimum of operating expense, including therein, our grant to the Research Institute, which has severely handicapped the services which this Institute has been able to render to the industry.

The Technical Section is strongly urging that the Association place the financing of this branch of our activities on a moderate but adequate annual basis, eliminating the necessity, with its attendant uncertainty, which has existed during the last few years for appealing for special contributions.

I refer to this later, but in passing, would like to express my opinion that I believe this to be one of the most constructive steps that our Association can make on behalf of the industry at this time.

Throughout the year the Tariff Department has continued to render good service to all branches of the industry and through its efforts a good deal of business has accrued to Canadian mills which would otherwise have gone to mills in foreign countries. This department has been materially assisted by the cooperation of the mills and in acknowledging this assistance desires once more to point out the importance of handling all tariff matters through the Association so that the interests of all members may be studied and safeguarded and that representations in regard to tariff matters may be more effective.

Research Work

It is a pleasure to draw the attention of the members again to the work being carried on in the Research Institute. This work is more fully dealt with in the reports submitted by the Joint Administrative Committee, the Division of Cellulose and Industrial Chemistry of McGill University and the Pulp and Paper Division of the Forest Products Laboratories. These reports outline the activities carried on and I would urge upon all the executives in the industry to acquaint themselves with what is being done in this connection. A great deal of technical service and research work is being done at little or no cost to the industry and this work is keenly appreciated by the technical men in the various company organizations many of whom give freely of their time and knowledge for the benefit of the industry in general. Owing to the generosity of some members who responded to a request made by the Administrative Committee for a special contribution it was possible to carry out this work during the past year on a somewhat broader scale than that of the last two years, but it is felt that there is still a much wider field for work of this nature and it is hoped that the appeal which has been made for more funds will meet with a wide response. Many of our members have taken advantage of the facilities offered by the Institute for investigative and testing work during the year and all members are invited to make use of these facilities. Acknowledgment is made of the assistance and co-operation accorded by the Forest Products Laboratories and McGill University which have been of very material assistance during the year.

In this connection it is with deep regret that we record the death of Mr. D. L. McLeod, who as chairman of the Joint Administrative Committee gave so unsparingly of his time and energy to the work of the Research Institute. It was due largely to his efforts that the work on a high speed grinding was carried on in the Institute and the results obtained through that investigation have proved of great value to the industry at large. Mr. McLeod's quiet and unobtrusive nature endeared him to a large circle of friends and the members owe him a debt of gratitude for his continued and earnest efforts on behalf of the work of the Institute.

Work of the Sections

The Technical Section has had a year of great activity. The various committees have functioned throughout the year and at the annual meeting and the summer meeting the papers and discussions were of a high order. Such work cannot fail to be of tremendous benefit to those taking part and the executives of company members are strongly urged to encourage their technical men to take an active interest in the work of the Section as such activities are of direct benefit to the organizations themselves as well as to the members.

A feature of the year was the three-day session held in November arranged by the Technical Section at which the latest technical developments in the industry were dealt with. The attendance at these sessions was beyond expectations and the keen interest displayed by those present showed that the Section was meeting a need. I would like to call your attention to the report of the Chairman of the Technical Section with particular reference to technical thought in the industry as an aftermath to these lectures that the educational contact between the industry and McGill University should be permanently improved.

The Woodlands Section reports an active and useful year. Its membership showed a gratifying increase and through the active cooperation of its members great benefits have been derived not only by the membership of the Section but by the organizations of which they form part. The Forest Products Laboratories of Canada have also cooperated effectively with the Section and a great deal of work of real value has resulted from this cooperation.

It is gratifying to note that as a result of the interest taken in the work of the Institute, the members both of the Technical Section and of the Woodlands Section have insisted that the meetings this year be extended to three days instead of the two days formerly given to these sessions.

In connection with the work of these two Sections there has been developed during the past year a much closer contact and cooperation towards the investigation and discussion of mutual problems has been most useful to members of both Sections. This cooperation was exemplified by joint sessions at the annual meeting and a large attendance of members of the two Sections at the summer meeting.

Difficulties of the Industry

In common with all other industries we have been passing through trying times and each branch of our industry has had its own peculiar difficulties. The past year has seen some improvement in demand, although, generally speaking, operating ratios were considerably below normal and the price situation was not always satisfactory, increased costs of production being unaccompanied by an advance in selling prices. I believe, however, that considerable progress has been made towards recovery and that while there is still a long way to go, conditions are today more stable and encouraging than they have been for some time. We are still faced with many problems, we always shall have problems, but we can face them today with more confidence as a result of our experiences during the past four years. I hope that the year 1935 will be a more prosperous year than 1934, not only for our own industry but for the Dominion as a whole.

In conclusion I want to express my appreciation of the excellent work done by the staff of the Association during the past year.

Reports of the Sections

The various sections reported as follows:

Book and Writing Paper Section

A. P. Jewett, chairman, in his report, said he anticipated that final figures for the year just ended would indicate a nominal improvement in the production for Canadian fine paper mills as compared with the previous year. "Possibly such increase as has taken place," he said, "falls short of the expectations of a year ago, but nevertheless indicates an improvement in general business which gives hope of better things to come providing this trend continues into 1935 as we hope and expect it to do.

"While production for 1934 is estimated to be about 82 per cent of 1929 capacity, it would rate but roughly 60 per cent of present capacity due largely to improved efficiency throughout our member mills. Our members are continually and progressively improving the quality of their products and the range of grades and qualities is being extended and widened from time to time. The present outlook is encouraging and the Canadian mills can, and do, I think, look forward to the future with confidence."

Coated Paper Section

Archibald Reid, chairman of the Coated Paper Section, reported that general business improvement in 1934 was reflected in the increased demand for coated papers, production being about 15 per cent greater than in 1933, although still far below what should be the normal yearly consumption.

"As business improves," he said, "the tendency to use cheaper grades of paper as a substitute for coated papers should decrease and the members of our Section look forward to a greater increase in tonnage for the coming year.

"Close attention has been given to imports which show a decrease of about 23 per cent from 1933, and constant efforts are being made by the mills to develop specialty lines for all requirements of Canadian consumers so that 'made in Canada' products may take the place of imported papers to the benefit of Canadian mills and workers."

Wrapping Paper Section

J. O. Chenevert, chairman, reported that the consumption of wrapping paper of all grades in 1934 increased approximately 10 per cent as compared with the consumption in 1933. Despite such improvement, the tonnage of wrapping paper consumed in Canada is yet far below the productive capacity of our Canadian wrapping mills. By cooperation among the Canadian wrapping mills, the Canadian market had remained stable, and they were looking forward to further improvement this year.

The Newsprint Industry

Eric G. Adams, secretary of the Newsprint Export Manufacturers Association of Canada, reported on the newsprint industry in 1934. He said:

Developments during the year have somewhat improved conditions in this most important branch of Canada's largest manufacturing industry. Production and shipments returned to near the 1929 levels for the first time. Prices continued at their depression low level, but it is now apparent that the long price decline has come to an end. Other newsprint producers for world markets have been faced with much the same difficulties as the Canadian industry, and they are also anticipating higher newsprint prices in the coming year.

The relationship between Canadian and United States currencies was reversed during 1934, so that, instead of receiving a premium on newsprint sales in the United States, Canadian mills suffered a small discount. Unsettled and adverse exchange conditions in overseas markets increased the difficulties of exporting, but in spite of this newsprint exports increased. It has become increasingly apparent that newsprint must be regarded as a world commodity for dislocations in distant markets have repercussions nearer home.

Production of newsprint in Canada amounted to 2,599,578 tons in 1934. This was nearly 29 per cent greater than in 1933, and only 5 per cent under the 1929 peak. Measured in dollars, however, the 1934 total is only a little over 60 per cent of that in 1929. According to Newsprint Service Bureau ratings, the industry operated at 67 per cent of capacity in 1934 as compared with 53 per cent in 1933 and 50 per cent in 1932.

During the year shipments to the United States markets amounted to 1,993,683 tons, an increase of 20 per cent over 1933. The market absorbed 72 per cent of Canadian production, which is about normal for recent years. Stocks at Canadian mills were fairly high during the fall, but the year ended with mill stocks lower than at any such time since 1929.

In October, consumption of 434 leading U. S. publishers reached the highest total since October, 1931. Advertising lineage increased appreciably during the year, and is well above the 1932 and 1933 totals. The average number of

pages printed by leading U. S. newspapers has now recovered to the 1931 level.

In the first eleven months of 1934 exports to overseas countries totalled 408,050 tons, as against 278,935 tons in the same period last year, a gain of 46 per cent. Exports to the United Kingdom are appreciably below last year's figures, with the result that both Australia and Argentina now rank higher than the United Kingdom which was formerly in first place.

In all important overseas markets outside of the United Kingdom, exports in 1934 were substantially higher than in 1933. The steady increase which has taken place in exports to Australia, Japan and China over the past four years is noteworthy.

As noted in the report of the Chairman of the Newsprint Section last year, the formation of the Newsprint Export Manufacturers Association of Canada took place in October, 1933. The function of this organization is primarily "to promote the general welfare of its members by the adoption of all such measures and policies affecting the sale of newsprint in or for use in the United States of America as shall be approved by the Association and required or permitted under the laws applicable thereto."

In September of this year Charles A. M. Vining was appointed president of the Newsprint Export Manufacturers Association which now has offices in the Pulp and Paper Research Institute at 3420 University Street, Montreal.

Chemical Pulp Section

Reporting for the Chemical Pulp Section, F. G. Robinson, chairman, said:

The year 1934 was characterized by considerable business uncertainty. Business indexes reflecting conditions in the United States—our principal market—indicated an extremely irregular trend. The pronounced recession during the summer was in large measure the natural consequence of the preceding rapid advance. Heavy forward buying of commodities of all descriptions in anticipation of sharp price advances resulted in an accumulation of inventories greatly in excess of current consumption requirements. Prices did not register the expected advance and, as there was no further inducement to add to the large stocks accumulated, buying was sharply curtailed. During the fall it became evident that inventories had been reduced to more normal proportions. A slow expansion in business activity followed.

This brief description of general conditions serves also to describe conditions in the sulphite pulp market. There are, however, conditions of a special character affecting the sulphite pulp industry and its markets. The vagaries of foreign exchange relationships and the policy of the European sulphite production control exemplify these special conditions. Sellers in countries exporting pulp to the United States experienced during the year a diminishing return in the currency of their own country on sales to United States.

In September last, the European Sulphite Suppliers resolved to maintain the previous rate of curtailment for 1935, namely, an average of 25 per cent of capacity.

Exports of Canadian bleached sulphite in 1934 totalled 252,999 tons, as compared with 269,793 tons in 1933.

Exports of unbleached sulphite in 1934 totalled 95,315 tons, as compared with 92,282 tons in 1933.

Light Weight Pulp Section

G. L. Carruthers, chairman, reporting for the above-named section, stated that the manufacturers of light weight sulphites had experienced very severe competition during the past year owing to the fact that volume in general had decreased; and also because a number of firms had entered this field within the past two years, the total now being six firms manufacturing waxing sulphites. Unfortunately there was not enough business to go around—a situation which tended to make the general condition on prices less stable than might be wished, resulting in price reductions.

"At the moment," he added, "we do not see any indication of increased tonnage in the near future, and, therefore, the outlook is not as bright as we had hoped for. Unquestionably there has been a general improvement in the quality of the papers manufactured; and certain of the interested firms have developed lines which had previously been imported. In this respect, at least, progress is indicated."

Mechanical Pulp Section

A. Stewart McNichols, chairman of the Mechanical Pulp Section, in his report, said:

Except for a slight increase in shipments to the United Kingdom, mechanical pulp exports during 1934 show very little change over last year and, in fact, for the past three years, as revealed in the following statement:

	U.S.A., Tons	United Kingdom, Tons	Total Exports, Tons
1932	100,799	15,371	116,170
1933	115,562	3,073	118,635
1934 (10 mos.)	90,806	5,579	96,385

Marketing conditions during the year have not improved; prices in the United States when not subjected to demoralizing features are barely holding their own, while in Europe they continue to remain at the lowest ebb reached during the period of depression. Excess productive capacity still prevails to a large extent, particularly in Norway and Sweden where the groundwood mills are aggressively competing against each other for export business.

The Board Section

J. W. Fitzgerald, reporting for the Board Section, stated that the year 1934 had, on the whole, been quite satisfactory. Prices held firm during the first six months of the year and a substantial increase in price, due to increased raw material costs, was well maintained during the last half of the year. While there was still an excess of capacity over production, this condition was gradually being corrected through improved conditions in the home market, and by a very substantial increase in exports.

The total consumption of the home market in 1934 amounted to 203,336 tons as compared with 184,522 tons in 1933, or an increase of 10 per cent. Of these totals the imports from other countries in 1934 accounted for 5,273 tons as compared with 4,602 tons, or an increase of 14½ per cent. The exports to other countries in 1934 amounted to 35,838 tons as compared with 18,449 tons in 1933, or an increase of 94 per cent. Thus the total shipments of Canadian board mills in 1934 amounted to 233,901 tons as compared with 193,369 tons in 1933, or an increase of 17 2-3 per cent. The value of imports of finished boxes in 1934 was $283,547 as compared with $358,495 in 1933, or a decrease of 21 per cent.

Owing to the increase in the production of newsprint in 1934 certain newsprint mills with United States affiliations imported an increased quantity of mill wrappers on which there was a duty of only ten per cent ad valorem and on which a drawback of 99 per cent is allowed when the wrappers are used on export rolls of newsprint. The importation of mill wrappers in 1934 amounted to 1,768 tons as compared with 587 tons in 1933, or an increase of 201 per cent. Exclusive of mill wrappers the imports of board show a total of 3,505 tons in 1934, as against 4,015 tons in 1933, or a decrease of 12¾ per cent. This decrease

was largely due to the continued activities of the Secretary of the Board Section, whose services in this connection are worthy of special commendation. The increase of 94 per cent in exports is highly satisfactory and, undoubtedly, much of this is the result of conditions brought about by the Imperial Conference.

Technical Section

F. L. Mitchell, chairman, reporting for the Technical Section, said the past year had witnessed not only continuation but improvement of the Section's services. Expressing appreciation of the cooperation of companies who had supported the Research Institute, he emphasized the need of increased support, saying the Institute urgently required a specially qualified staff and the section required the reinstatement of its Technical Representative at the Institute, and he could not be employed or retained without adequate funds at the committee's disposal. Reference was made to the good attendance at the series of lectures which had been delivered covering the various divisions of the Institute during the past two or three years, Mr. Mitchell stating that the feeling was that such lectures should form one of the Section's regular functions.

"A most important development that has its partial origin in the success of these lectures," he remarked, "has been the focussing of technical thought in the industry on the fact that our use of the educational facilities at the Institute and McGill, from the viewpoint of training a group of selected men to more adequately equip them for employment in the industry leaves room for considerable improvement. It will be the purpose of this Section if the funds we are appealing for are forthcoming on a permanent basis, to develop ways and means of correcting this deficiency in a substantial manner, and we are glad to report that we feel sure that once the industry shows its interest through support of our appeal, we are assured of the practical co-operative support of both McGill and the Forest Products Laboratories."

Mr. Mitchell further reported that as a result of the constitutional amendment passed at the last annual meeting the following had become affiliated members: Canadian Industries, Canadian Stebbins Engineering and Manufacturing Co., Dominion Engineering Co., Waterous Limited, Texas Gulf Sulphur Company, the Ross Engineering Company. He believed this was a constructive step in the expansion of the Section's activities and influence. The members wished to express regret at the death of a prominent member, Donald McLeod, manager of the Ontario Paper Company.

Woodlands Section

Howard Kennedy, chairman of the Woodlands Section, reported much satisfaction with the progress made in the past year. Membership had again increased, and now stood at 115, including 5 associate members. This was the largest membership in the history of the Section. It was particularly gratifying that the widening interest in the work of the Section was not confined to Woodlands Staffs, but was extending amongst the general executives of the various member companies. He continued:

We have to acknowledge the fullest cooperation of the Forest Products Laboratories and the Bureau of Plant Pathology, both of whom are carrying out schemes in collaboration with the Woodlands Section. The Association of Forest Engineers for the Province of Quebec has donated the sum of $200.00 to assist in the preparation of the text book on "Logging," which we hope to produce late in 1935, or early in 1936. We are most grateful for this token of their interest and confidence in the work of the Section.

The Summer Meeting, held on the limits of the Canada Paper Company at Windsor Mills, was particularly successful and our sincere thanks are due our hosts for their untiring efforts to make everybody comfortable. Over one hundred delegates were present, including the members of the Technical Section. A very gratifying feature was the attendance of several senior executives of the various organizations concerned.

It was deemed wise before completing preparations for the text book on "Logging" to have our Secretary-Forester, Mr. A. Koroleff, visit Europe to acquire data on the latest developments in operations and equipment there, as well as to make comparisons with our own methods with the object of improving the latter. He returned just before the New Year and while his report is not yet completed owing to a serious eye operation, there is no doubt that his trip has been most successful and that both the effort and money has been spent to good advantage. Mr. Koroleff visited England, Germany, Austria, Poland, Czechoslovakia, Sweden and Finland and personal contacts have been made in each of these countries which make the future acquirement of data from them comparatively simple.

Our contacts with Forest Schools on both sides of the line have been maintained and we particularly wish to acknowledge the interest and assistance of Professor Bryant of Yale, Professor Brown of New York State College, Professor Recknagel of Cornell, and Professor Chapman of Yale.

Pulp and Paper Research Institute

Reporting on the work of this Institute during the year, Harold Hibbert dealt at length on investigations carried out to determine the structure of lignin. The investigations were summarized as follows:

Lignin is a complex product having the empirical formula $C_{42}H_{32}O_6(OH)_5(OCH_3)_5$. It possesses both aromatic and aliphatic constituents and contains neither free ethylene linkages nor active carbonyl groups. Of the five hydroxyl groups, one is phenolic in type, one behaves as a glucosidic hydroxyl and the remaining three are aliphatic in character. It is probable, though not certain, that oxygen rings are present, of the furane or flavone type. Active work is in progress on the "breaking-down" of lignin into simpler constituents, as a result of which it has been possible to obtain from the lignin sulphonic acid present in waste sulphite liquor considerable quantities of vanillin by what promises to be a cheap commercial process. Attempts are to be made by one of the constituent companies to develop the process commercially during the coming year.

For an adequate knowledge of the chemical changes taking place in the sulphite digester it is first of all necessary to understand the properties and structure of lignin sulphonic acid. This unstable substance has been isolated in a pure state and its properties investigated. From this and other investigations it seems highly probable that much more exact knowledge of the mechanism by which the lignin is extracted from the wood should be available shortly.

Alkali lignin, or the lignin formed in making Kraft pulp, has been found to have a different structure from the lignin present in sulphite pulp, so that the ideal bleaching process to be used for each type will naturally vary accordingly.

A complete review of glass-electrode control in connection with the paper industry is being carried out for one

of the constituent companies in connection with which it is hoped to apply automatically-regulated control methods to the bleaching operations.

The recent results would seem to indicate the possibility of additional industrial applications for waste liquor as soon as the new structural features of the lignin complex have been definitely established.

Forest Products Laboratories

H. Wyatt Johnston, reporting on the research activities of the Pulp and Paper Division of the Forest Products Laboratories of Canada, touched upon several interesting developments. He said:

A new drainage tester has been devised and constructed to evaluate small amounts of pulps by studying the drainage characteristics of fractions obtained by fibre classification, since it is likely that the drainage characteristic when determined on a narrow fraction will be indicative of the degree of fibrillation of the pulp and not be influenced by fibre length. In making the test all loss of fines is eliminated so that no error is introduced from this source, but sufficient work has not been possible to establish the utility of this test.

The method of operating the Valley laboratory beater has been modified to give more consistent results and the influence of roll loading has been investigated.

The action of other types of laboratory devices for developing pulp strengths is under investigation and at the suggestion of a worker under Dr. Maass a miniature rod mill has been constructed which is suitable for use with very small pulp samples.

Steps have been taken to reduce to standard form some of the testing methods in use at the Division, but lack of a worker with sufficient training has retarded this valuable attempt to develop a laboratory manual.

The methods in use at the Division for evaluating the lignin content of pulps and for analyzing sulphite liquors have been critically examined and improved.

In cooperation with Dr. Maass an improved apparatus for estimating the relative projected areas of pulp suspensions has been constructed and tested in cooperation with workers under Dr. Maass with very gratifying results. For the estimation of yields of sulphite pulp from small amounts of wood a very inexpensive and convenient form of 18-8 chrome nickel iron bomb has been developed. The Johnston fibre classifier has been reduced to a form in which it is now suitable for commercial production in a two-unit assembly, and arrangements have been made for it to be manufactured and marketed.

The researches directed toward a better understanding of the relationship between cellulose and water, which has proved so fundamentally important in studying all phases of practical papermaking, have made considerable progress. The study of the sorption of methyl and propyl alcohol vapours by cellulose has been completed. From these experiments it has been possible to form a fairly correct picture of the mechanism of such fundamental phenomena as the bonding of fibres in paper, and the manner in which fibrillation shrinkage and swelling take place.

The pulping of spruce by kraft and soda liquors has been investigated in such a way that it is now possible to present for the first time a satisfactory theory of the rate of alkaline pulping. It has also been possible to extend this work on alkaline cooking to the semi-commercial scale, using normal kraft liquors as well as low concentrations both of mixtures of sodium sulphide and sodium hydroxide and of sodium sulphide alone.

An investigation of sulphite pulping, along the lines of the work on alkaline pulping just completed, has been commenced. The intention is to study the rates of the reactions which take place in pulping under such conditions that the effects of penetration and diffusion are eliminated as far as possible.

In the grinding of mechanical pulp much interesting work has been done during the past year and more is planned. The object of this investigation was to ascertain the possibility of producing pulps suitable for use on modern fast newsprint paper machines at high stone speeds, and to study the manner in which production and power consumption were affected by variations in speed and pressure. The results obtained were very gratifying and indicated a strong possibility that the commercial production of pulps of the desired type could be attained at high stone speeds. It was found that for equal strength and freeness production increased proportionally to speed but that the energy consumption per ton of pulp produced was unchanged. The practical significance of this discovery lay in the fact that production could be increased without rebuilding existing grinders by simply rewinding motors or changing turbine runners, while new units could be erected at a lower capital cost per ton of capacity for a desired grade of pulp. It was also found that any desired grade of pulp could be produced from artificial stones and under any reasonable combination of speed and pressure up to the limits permitted by the equipment available, namely 50 lb/sq. in. of pocket area and 5600 lineal feet min. surface speed. Pulps of the same grade can be produced from pocket areas varying from 100 to 2900 square inches, but no variation in power requirements was observed.

As a result of the interest caused by these experiments your committee suggested that a fundamental investigation of the expenditure of energy in grinding mechanical pulp might offer great possibilities for practical application, in view of the probability that over 99 per cent of the power used in grinding pulp was wasted in the production of sensible heat. Preliminary investigations showed that it would be of interest to ascertain the manner in which tools of different shape removed fibres from wood. Other studies showed that the heat developed in grinding is probably developed very suddenly, suggesting that possibly defibring is assisted by moisture in the wood being suddenly turned to steam with explosive force. A miniature grinder has been devised in which it will be possible to investigate more conveniently and accurately the manner in which fibres are removed and to make a heat balance for the grinding operation.

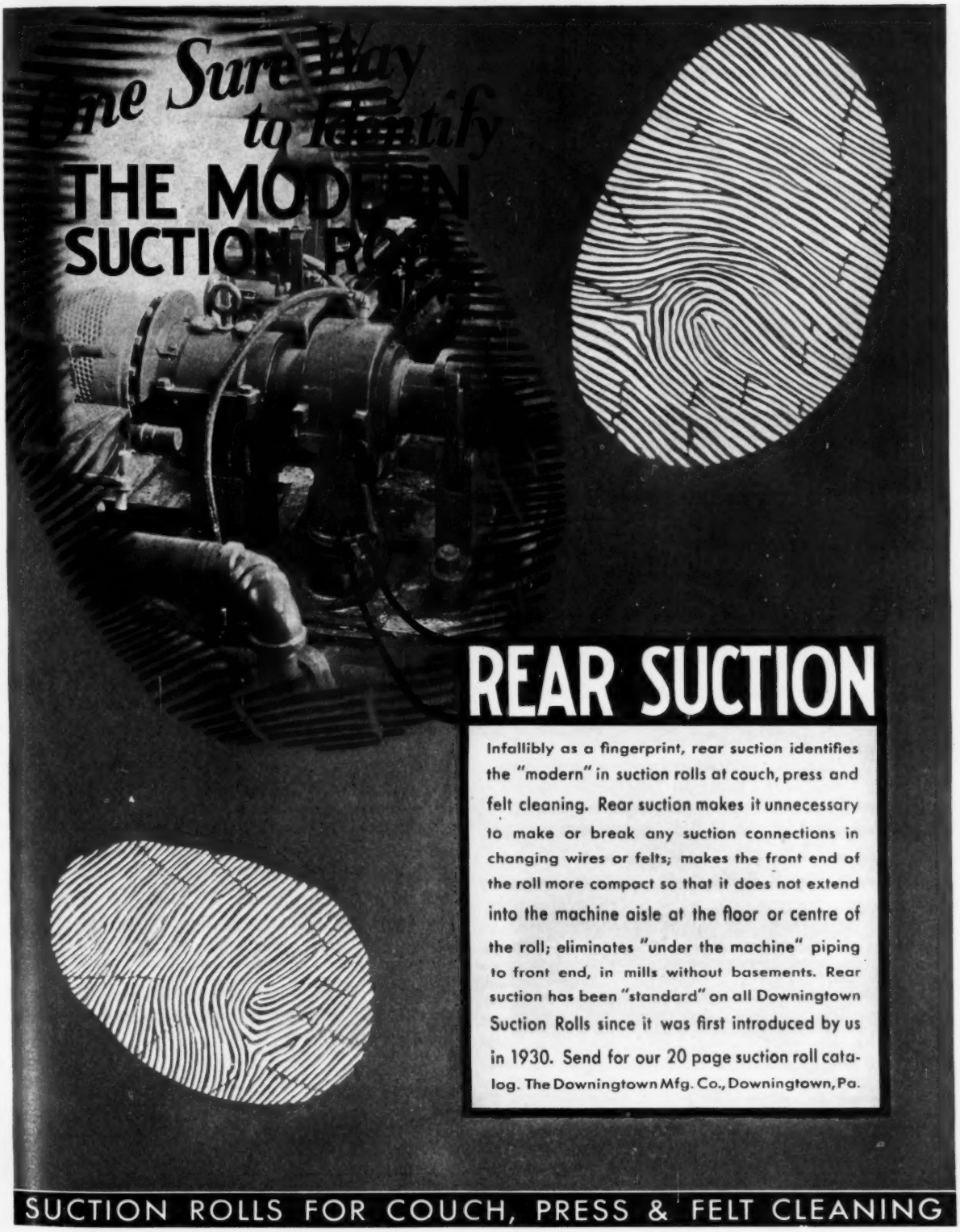
The Division was called upon to answer a wide range of inquiries, especially in the fields of groundwood manufacture, yield of sulphite pulp and evaluation of pulp quality. The total number of inquiries handled was four hundred and forty-one.

Chairman of C. P. R. on Newsprint Difficulties

E. W. Beatty, K. C., president of the Canadian Pacific Railway and Chancellor of McGill University, was the guest speaker at the annual luncheon of the Association in the Ritz-Carlton Hotel. Referring to the difficulties which face the newsprint industry, he spoke both from the point of view of the manufacturer in Canada and the consumer in the United States. With respect to the former he said:

"No one in Canada regrets more than I your apparent inability to secure readily a reasonable compensation for your product, no one regrets more than I the probable necessity of government intervention in order to remedy situations largely of your own creation, and no one is more profoundly convinced than I am that three things are necessary for your future prosperity; namely, proper groupings of the mills in consolidations which are geographically

DOWNINGTOWN



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Infallibly as a fingerprint, rear suction identifies the "modern" in suction rolls at couch, press and felt cleaning. Rear suction makes it unnecessary to make or break any suction connections in changing wires or felts; makes the front end of the roll more compact so that it does not extend into the machine aisle at the floor or centre of the roll; eliminates "under the machine" piping to front end, in mills without basements. Rear suction has been "standard" on all Downingtown Suction Rolls since it was first introduced by us in 1930. Send for our 20 page suction roll catalog. The Downingtown Mfg. Co., Downingtown, Pa.

SUCTION ROLLS FOR COUCH, PRESS & FELT CLEANING

appropriate and financially in proper structure; adequate prices for your product, and maximum efficiency in your operations."

Turning to the point of view of the American consumer, he dwelt on the necessity of research as a means of improving methods and lessening costs, and said:

"I do not believe that the publishers of the United States will pay a price for newsprint that represents more than a fair return to an efficient mill, operated by men of sound operating ability and assisted by the developments of science.

"I do not consider it reasonable to regard periodical increases in the price of newsprint as the way out of our difficulties. Prices rise and fall with costs, markets and other considerations, but, in order to secure and maintain the goodwill of the vast number of consumers in the United States, it is essential that they should be satisfied that no portion of the price which they are asked to pay is due to the inefficiency of the mills or to the unwarranted capitalization of the companies owning these mills."

He stressed the fact that other countries are competing in the production of newsprint and that research in methods of cheaper production is continuing in these, and concluded by making it clear that he would hold it poor economy on the part of the newsprint industry to do anything but support scientific efforts to decrease production costs in Canada.

Paper Testing at TAPPI Meeting

The foundation of the present extensive work being carried on in the industry on paper grading are the paper testing methods developed by the Technical Association of the Pulp and Paper Industry. This work has been going on for twenty years and this year will witness many new means of estimating paper quality.

Under the chairmanship of B. W. Scribner of the Bureau of Standards, Washington, D. C., the TAPPI Paper Testing Committee will sponsor a meeting during the annual convention of the Association on February 18 to 21, 1935, at the Waldorf-Astoria in New York City. The program is as follows:

There will be progress reports from the following subcommittees: Chemical Methods, Grease Resistance, Microscopical Methods, Physical Tests, Printing Properties, and Water Resistance.

James d'A. Clark of the Scott Paper Company, Chester, Pennsylvania, will read a paper on "The Determination of Rigidity, Stiffness and Softness of Paper."

B. L. Wehmhoff of the Hall Printing Company, Chicago, Ill., will discuss "The Evaluation of Printing Qualities of Paper."

It was found that none of the approved paper tests would yield any information of value in determining printing quality. Using the oil penetration test described by E. O. Reed in a previous committee report, as a starter, methods have been developed for determining the relative printing qualities of paper. The tests used include oil penetration or absorption (depending on the kind and weight of paper, density and printing smoothness). These together with basic weight and thickness, have been found to yield the desired information. Resiliency, or hardness apparently have some bearing, but the studies on this have not progressed far enough to permit conclusions to be drawn.

W. G. Dodge and G. E. Tarvin of the New York Daily News Publishing Company will report on "The Testing of News Print for Smoothness, Ink Penetration and Transparency."

Three paper properties are related to paper printability, namely, smoothness, ink penetration and opacity.

A smoothness tester has been constructed which is well fitted for measuring the nature of the surface of the news print, and which gives readily reproducible readings.

A penetration test has been devised that will indicate the degree of ink penetration as a function of time. The readings so obtained may be used as an indication of the absorptiveness of paper for printing ink.

A study of opacity shows the contrast-ratio to be less accurate than is a direct measurement of the light passing through the sheet. Any advantage gained by the use of the contrast ratio method is nullified by the use of an integrating sphere. It is possible to obtain the same percentage of light transparency by direct measurement, as by use of the contrast-ratio device without the integrating sphere.

F. M. Williams of Watertown, N. Y., will discuss "The Effects of Smoothness and Texture of Paper upon Printability."

John B. Calkin of Cornell University will read a paper on "Certified Stains for Fiber Differentiation."

Attention is drawn to the importance of using standard dyes where possible, and in the case of a new stain to provide others trying out the stain with samples of the same batch of dye. Mention is made of the desirability of TAPPI cooperation with the Biological Stain Commission, which is engaged in the standardization of stains in microscopical work.

John H. Graff of the Institute of Paper Chemistry and formerly of the Brown Company will present two papers: "New Stains and their Use in Fiber Identification," and "Studies in Fiber Identification."

This subject has received considerable prominence since Dr. Graff presented his preliminary paper at the recent meeting of the Superintendents Association at Poland Springs, Maine. Dr. Graff will demonstrate the use of his stains for identifying the various paper making fibers.

Various new paper testing instruments will be described and exhibited.

No Action in Sight on Newsprint Code

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 30, 1935—The proposed newsprint revised code is still resting in the office of Averill H. Harriman, Administrative Officer of NRA, where it is being held supposedly at the request of the White House, according to current rumors. There is no telling, when, if ever, it will be pulled out of the pigeonhole.

It is reported here that there is something doing again in connection with the pulpwood code. It is said here that the industry committee has practically agreed to raise the wages for the northeast up to those contained in the lumber code while other wages in the proposed code have not been raised as high as those contained in the lumber code which is what NRA has been holding out for all these months. At any rate, it is stated that it looks more hopeful for finally getting this code approved than it has for a long time.

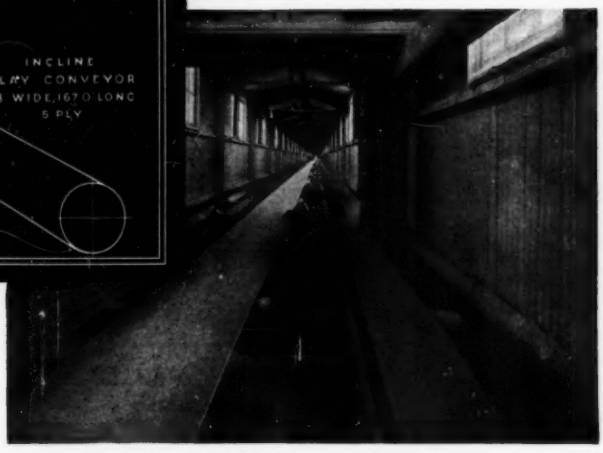
William Hassett Dead

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 28, 1935—William Hassett, who was associated with various paper mills in the Fox River Valley during his career, died last week at Milwaukee, Wis., He was 87 years old, and had been retired for some time.

THE CHAMPIONS OF CHAMPION

Goodyear Conveyor Belts set record in world's largest coated paper mill



Installed 1920—and still on the job

14 years' service proves value of GTM Specification

IN THE great modern plant of The Champion Coated Paper Company at Hamilton, Ohio, three veteran conveyor belts have quietly proved themselves champions by every test of belt performance.

Back in 1920 the G. T. M.—Goodyear Technical Man—was called to Hamilton and consulted about belts for the conveying system handling the fine clay used in giving Champion papers satin-smoothness.

Carefully considering all factors the G. T. M. recommended a 5-ply Goodyear Conveyor Belt, 18" wide by 167' long, for the incline conveyor. Another 1372' long for the distributing conveyor, and a third, 14" wide by 1440' long, 4-ply, for the reclaiming conveyor. These belts were built to specification and installed in late 1920 and early 1921.

Today, after rolling on their appointed rounds, day after day, month after month, for some 14 years—after moving nearly seven hundred million pounds of clay—these three belts, while somewhat worn to be sure, are still good for another year of stalwart service.

That's the kind of trouble-free, low-cost, uninterrupted performance you want from belts—and that's what you get when you have belts accurately specified to your operation by the G. T. M., as records in scores of industries prove.

Why not see what this competent expert could do for you. To bring him, write Goodyear, Akron, Ohio, or Los Angeles, California—or call the nearest Goodyear Mechanical Goods Distributor.

BELTS • MOLDED GOODS
HOSE • PACKING
MADE BY THE MAKERS OF GOODYEAR TIRES

THE GREATEST NAME IN RUBBER

NRA CODE

GOODYEAR

Bids and Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 30, 1935—The Government Printing Office has received identical bids for 97,000 pounds of white index at 13.03 cents per pound from the following: Whitaker Paper Company, R. P. Andrews Paper Company, Whiting Paper Company, Aetna Paper Company, J. W. Butler Paper Company, Old Dominion Paper Company, W. L. Jones, Inc., Reese & Reese, Inc., and Mathers-Lamm Paper Company.

Identical bids at 6.06 cents per pound were also received for 72,000 pounds of white sulphite bond as follows: American Writing Paper Company, Inc., R. P. Andrews Paper Company, Aetna Paper Company, Perkins-Goodwin Company, Old Dominion Paper Company, Cauthorne Paper Company, Graham Paper Company, George W. Millar & Co., Dobler & Mudge, Whitaker Paper Company, Reese & Reese, Inc., J. W. Butler Paper Company, and W. L. Jones, Inc. George W. Millar & Co. and the Whitaker Paper Company also submitted alternate bids at 5.82 cents and Garrett-Buchanan Company bid 7.51 cents.

The Government Printing Office has announced the following paper awards:

The Aetna Paper Company will furnish 5,325 pounds (50,000 sheets) of 23 x 36, 50 per cent rag white bond paper at 11.951 cents per pound. R. P. Andrews Paper Company will furnish 28,250 pounds (125,000 sheets) of 24½ x 32½, single ply white sulphite index at 5.57 cents and the same firm will also furnish 3,800 pounds (20,000 sheets) of 27 x 38 sulphite manila paper at 6.25 cents per pound. Bids for all of these items were received on January 16.

Barton, Duer & Koch Paper Company will furnish 100,000 pounds of English finish book paper in 38" rolls at 4.52 cents per pound and 38 x 42" at 5 cents per pound.

The Government Printing Office has announced the following paper awards:

The award for furnishing 97,000 pounds (500,000 sheets) of single ply 50 per cent rag white index has been divided up equally at 11.0755 cents per pound to Whitaker Paper Company, W. L. Jones, Inc., and Mathers-Lamm Paper Company.

Awards for 72,000 pounds (1,000,000 sheets) of 21 x 32 white sulphite bond paper have been made equally at 6.06 cents per pound to R. P. Andrews Paper Company, Hammermill Paper Company, and Aetna Paper Company. Bids for these items were received on January 21.

Chlorine Trouble at Beaver Falls

E. S. Nuspliger, mill manager of the J. P. Lewis Company, Beaver Falls, N. Y., writes that the mill recently experienced some difficulty with chlorine, but that the facts were grossly exaggerated in newspaper reports. The facts in the case were as follows:

"About 6:30 P. M., Monday, January 21, the hissing of steam was reported in the little separate building which holds two one-ton chlorine tanks, one of which is held in reserve and another is connected to our chlorine water treating system.

"The smell of chlorine was also detected at the same time and our men equipped themselves with gas masks and investigated the trouble and found that a radiator near the ends of these tanks had apparently been frozen and burst, and the live steam in the small building melted the safety plugs in these two tanks and allowed the chlorine to escape.

"Some of it, of course, got into the mill and was very disagreeable although not dangerous or bad enough to prevent the shutting down of machines and everybody getting out away from the gas fumes without difficulty. The wind was blowing away from the mill but toward some houses about three thousand feet from the mill, and during the time the gas was exhausting from these tanks, these people naturally got out of their houses and went to neighbors until same had cleared up.

"There were a few cases of men who remembered the stories of gas warfare in 1917-18 and who got a smell of this and were rather worried and reported to the doctor. There was no one so far overcome, however, to suffer any ill effects and fortunately there was no harm done except to frighten the newspaper reporters into writing stories they did.

"The tanks were fully expended by 10:00 P. M. and the mill was entirely clear of gas fumes and ready for the resumption of operations at midnight.

"Proper steps have been taken to eliminate any chance of this happening in the future and after this experience we are sure there will be no great difficulty in taking care of the situation even if it did happen.

"We have passed through much more dangerous experiences at various times and of which the newspapers made absolutely no mention and it seems that there is considerable ignorance concerning the commercial chlorine being used as to its dangers."

Changes in Bird & Son

EAST WALPOLE, January 28, 1935.—At the meeting of the board of directors of Bird & Son held Monday, January 7, certain changes were made in the organization. The officers and directors of the company as now constituted follow:

Philip R. Allen, chairman of the board; Charles S. Bird, Jr., vice-chairman; Benjamin H. Roberts, president; Axel H. Anderson, secretary and treasurer; Richard C. Floyd, vice-president and director of sales; Charles W. Conrad, vice-president and director of manufacturing; Philip H. Bailey, vice-president and consultant; Elmer H. Bartlett, vice-president and consultant; George R. Wyman, vice-president and consultant; Frederick H. Hird, sales manager, Special Paper Division; George C. Lee, Westwood, Mass.; John R. Macomber, Framingham, Mass.; Benjamin D. Rogers, director of personnel; Allen H. Russell, purchasing agent; H. Eugene Sawyer, Jr., president, Bird Floor Covering Sales Corporation (a subsidiary).

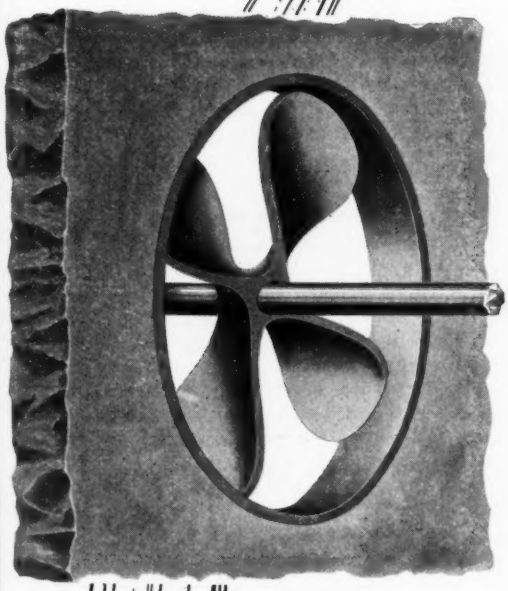
Executive Committee—Philip R. Allen, chairman; Charles S. Bird, Jr., vice-chairman; Axel H. Anderson, secretary; Philip H. Bailey, Elmer H. Bartlett, Benjamin H. Roberts, George R. Wyman.

Arthur D. Little Made Chairman

At the annual meeting of the stockholders and directors of Arthur D. Little, Inc., chemists and engineers, Cambridge, Mass., held respectively on January 23 and 24, Arthur D. Little retired as president and was elected chairman of the board. Earl P. Stevenson, who has been with the organization since 1919 and vice president since 1922, was elected president, and Roger C. Griffin, a member of the staff since 1909, was elected treasurer. Raymond Stevens continues as vice president.

The following board of directors was elected: Carl P. Dennett, W. Cameron Forbes, Horace S. Ford, Randolph C. Grew, Roger C. Griffin, Arthur D. Little, Royal Little, Henry A. Morss, Henry G. Powning, Earl P. Stevenson, Robert G. Stone, Alexander Whiteside.

A Great Mixer

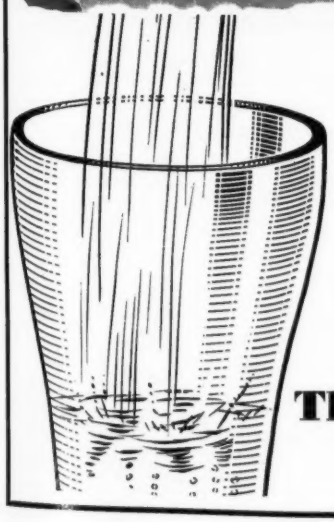


It is practically impossible to dump two identical beater loads. There is bound to be some variation in stock character. And, unless the stock is thoroughly mixed it will show up in the finished sheet.

That is why the Noble & Wood Propeller is a necessary piece of paper mill equipment. It mixes stock thoroughly. Variations in consistency and color from beater to beater are immediately averaged in the chest. It overcomes mottled and off-shade paper. In cases where the color is slightly off, additional color can be added to the chest itself and the correction quickly made.

Noble & Wood Propeller

(Patented)



The Noble & Wood Propeller keeps *all* the stock moving all the time. There are absolutely no stagnant spots in the chest, whether it is full or practically empty. And, because of the continuous flow of all the stock in the chest the walls stay clean and the chest can be pumped out to the last fibre.

Stock consistencies of 6% and higher are entirely practical. Power consumption is exceptionally low.

Noble & Wood propellers can be installed in any type or size of chest—vertical or horizontal.

If you are interested in a clean, quality sheet, install Noble & Wood Propellers. These Propellers are also used in prehydration systems, fast circulating and high density beaters, mixing engines and cookers—wherever stock must be circulated, hydrated, mixed, colored or kept in suspension.

Literature giving detailed information and illustrating actual installations gladly sent on request.

The NOBLE & WOOD MACHINE CO.
HOOSICK FALLS, N. Y.

Obituary

Diedrick W. Bergstrom, Jr.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 28, 1935—One of the most popular and dominant younger executives of paper mills of the Fox River Valley area, Diedrick Waldemar Bergstrom, Jr., was called by death last week. He was vice president and sales manager of the Bergstrom Paper Company, Neenah, Wis. The end came Thursday night, January 24, at Theda Clark Hospital at Neenah, where he had been ill for three weeks with encephalitis.

Born in Neenah November 3, 1889, he was 45 years old when he passed away. He received his early education in Neenah schools and in 1906 entered Lawrence Academy at Appleton, Wis. He completed the work in the academy, and then attended Lawrence college for two years. Mr. Bergstrom then entered the business of his father, the late D. W. Bergstrom, Sr., and learned paper making by working in various departments, where he had also been employed during his vacations. After the death of his father, he became one of the major executives of the mill and was made vice president.

Mr. Bergstrom was married in Chicago, May 28, 1914, to Miss Agnes Forsythe, whom he met while a student at Lawrence college. He is survived by his mother, his widow, one daughter, Betty Jane, and three sons, Diedrick, John and Eric; also three brothers, John N. and Nathan H. of Neenah and Willis of Phillipsburg, N. J., and one sister, Mrs. A. E. MacQuarrie, Minneapolis.

The deceased manufacturer was elected president of the Wisconsin Paper Group when it was organized to pool its selling and shipping efforts more than a year ago, and was re-elected at its annual meeting January 5. He was an ardent sportsman, with membership in the North Shore Country Club and the Ridgeway Golf Club, where he often was a tournament winner. He also was a bowling enthusiast and at one time served as president of the Wisconsin State Bowling Association. Equally important to him was his leadership in the Presbyterian church, as was traditional with his family. He taught a Sunday school class and was a member of the board of trustees. He was a member of the Neenah club, the Equitable Reserve Association, the Modern Woodmen, and Fraternal Order of Eagles, and of the Lawrence college chapter of Phi Delta Theta fraternity. He also was a member of the Neenah board of vocational education.

Funeral services were held at the residence at Neenah, Sunday, January 27, and interment took place at Oak Hill cemetery of Neenah.

Watson A. Yule

Watson A. Yule, of Chicago, who, since 1906, had been Middle West representative for F. C. Huyck & Sons, Kenwood Mills, Albany, N. Y., manufacturers of paper makers felts, and for the past several years a director of that company, died suddenly in Green Bay, Wis., on Thursday, January 17. Funeral services were held in Chicago on January 19 and in Toronto, Ont., on Sunday, January 20. He was buried at Aurora, Ont., his birthplace, near Toronto.

Mr. Yule, who would have been sixty-five years of age on May 21, is survived by his widow, Mrs. Emily A. Yule and three brothers, J. C. Yule, of Arnprior, Ont., E. W. Yule, of Alexandria, Ind., and Edmund Yule, of Mount Forest, Ont.

Before becoming associated with F. C. Huyck & Sons in 1906, Mr. Yule was connected with the Alexandria Paper Company of Alexandria, Ind.

Besides being a director of F. C. Huyck & Sons, Mr. Yule was a director of the Fort Howard Paper Company, of Green Bay, Wis., and a member of the Executives Club of Chicago, the Navajo Fields Gold Club, Worth, Ill., the Detroit Athletic Club, and the University Disciples of Christ Church, Chicago, Ill.

Mr. Yule was also Past Exalted Ruler of the Elks Lodge of Alexandria, Indiana.

John Daley

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 28, 1935—John Daley, well known paper mill superintendent, died last week at his home at Port Huron, Mich., at the age of 80 years. He came to Wausau, Wis., from Kaukauna, Wis., in 1899 and was superintendent of the Wausau Paper Mills Company, at Brokaw, Wis., for four years after the mill was constructed. He went from there to Ohio, but returned later to serve for two years as superintendent of the Marathon Paper Mills Company at Rothschild, Wis. About twenty years ago he left for Port Huron, to become superintendent of the Port Huron Paper Company. He retired a number of years ago, but continued in the employ of the company in other capacities until his death. A son, Walter Daley, is sales manager of the Watab Paper Company, Sartell, Minn. Mr. Daley at one time was an officer of the American Paper and Pulp Mill Superintendents' Association.

Rudolph Jacoby

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 30, 1935—The death is announced of Rudolph Jacoby, mill manager for the Union Bag and Paper Company at Kaukauna, Wis. He passed away January 9 at his home at Appleton, Wis., from monoxide poisoning.

Mr. Jacoby was born in Appleton, and was 47 years old. He had been employed by the Union Bag and Paper Company for 26 years. He was prominent in lodge circles, and a golf enthusiast.

Funeral services were held at Appleton, with the Masonic lodge in charge, and burial was made in Riverside cemetery of that city.

Joseph G. Sailer

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 30, 1935—Joseph G. Sailer, who until fourteen years ago was associated with the Sailer-Whitmore Machine and Foundry Company of Menasha, Wis., died recently at his home at Neenah, Wis. He had been identified with the industrial life and equipping of paper mills of Menasha and vicinity for more than a quarter of a century. He was 48 years of age, and died following an operation for appendicitis. Burial was made at Neenah.

Herbert Small Morley

[FROM OUR REGULAR CORRESPONDENT]

BALDWINSVILLE, Mass., January 28, 1935—Herbert Small Morley, who operated an asbestos paper factory here for a number of years, died recently in this place. Mr. Morley was 90 years old. He was a native of Boston. He was one of the oldest living alumni of Amherst College, having been graduated in 1866.

SONOCO

CLIMAX
LOWELL

Join Hands to serve you better

The facilities of the Sonoco Products Company, Hartsville, S. C., the Climax Tube Company, Mystic, Conn., and the Lowell Paper Tube Corporation of Lowell, Mass., have been combined to give better service to the customers and prospects of each.

The six plants of this combination — located in five states and Canada, are strategically placed, assuring even faster deliveries of the products you use.

SPECIALIZING IN NON-RETURNABLE PAPER CORES FOR PAPER INDUSTRY

The merged units will be known as the Sonoco Products Company with main office continuing at Hartsville, S. C. The Northern Group, consisting of plants located in Garwood, N. J., Mystic, Conn., and Lowell, Mass., will be known as the Climax-Lowell Division, with sales and executive offices at Mystic, Conn.

Whenever we can be of help please write, phone or wire our nearest office.

SONOCO PRODUCTS COMPANY

HARTSVILLE, S. C. MYSTIC, CONN.

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COMING EVENTS

AMERICAN PAPER AND PULP ASSOCIATION, Fifty-Seventh Annual Convention and Meeting, Waldorf-Astoria Hotel, New York, February 18-21.

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Convention, Waldorf-Astoria Hotel, New York, February 18-21. Annual Luncheon, Waldorf-Astoria Hotel, Thursday, February 21.

SALESMEN'S ASSOCIATION OF THE PAPER INDUSTRY, Annual Meeting and Luncheon, Waldorf-Astoria Hotel, New York, Tuesday, February 19.

NEW YORK ASSOCIATION OF DEALERS IN PAPER MILL SUPPLIES, Annual Banquet, Hotel Commodore, Wednesday, February 20.

NATIONAL PAPER TRADE ASSOCIATION OF THE UNITED STATES, Convention, Waldorf-Astoria Hotel, New York, February 18-21.

SHARP UPTURN IN DECEMBER REVERSES SEASONAL TREND IN INDUSTRY

In the most optimistic summary of general business and financial conditions it has issued in many months, the Federal Trade Commission on Monday of this week reported that in December its seasonally adjusted indexes of industrial production and mill employment increased sharply. Because of the generally conservative temper of the reports of the Federal Trade Commission and because the customary seasonal trend downward was reversed, extraordinary importance was attached to these developments.

Automobiles and steel production led in the advance, a very sharp increase in the former being accounted for in part by the fact that the period for marketing new models had been changed by manufacturers. But even with this factor eliminated, the gain was of consequential proportions.

This was one of the developments which stimulated steel production. However, the indices showed that the upward movement was reflected in virtually all industrial groups except cement, zinc and tobacco, although the latter showed less than the usual seasonal decline.

As a result of the actual increases in output of the basic industrial products, instead of the usual seasonal decline, the board's statistical index, after adjustment for seasonal variations, rose from 74 per cent of the 1923-25 average in November to 85 per cent in December, an advance of eleven points.

Without making allowance for the seasonal variations the index chart figures were 74 in November and 77 in December. The unadjusted index chart also showed basic industrial production at 77 per cent of the 1923-25 average as compared with 69 for December one year ago.

The increases also brought the average level of industrial production to approximately that of December, 1930, when, without adjustment for seasonal variation, the index figure was 77, the same as last month, and after adjustment 84, or one point under that for last month. In December of 1931 and 1932 production dropped to much lower levels.

Construction continued to lag somewhat behind other indices, the board stating that the value of contracts awarded, as reported by the F. W. Dodge Corporation, showed a decline in December, partly seasonal in nature, followed by an increase in the first half of January.

The volume of freight carloadings showed a smaller decrease in December than is usual at that season, the board found.

The board did not attempt to draw conclusions but officials who have been watching for satisfactory evidence of a definite gain in the fight against the forces of depression felt that there was at least a measure of comfort to be found in the recent upward tendencies, and developments to come in the next few weeks are being awaited with the keenest interest.

The board said that at woolen mills and silk mills activity increased in December, also contrary to the seasonal trend. At tobacco factories, while the actual output was somewhat smaller in December than in the previous month, the decline was less than that usually experienced. Also, the board said, the output of petroleum increased somewhat in December.

Factory employment, the board found, increased between the middle of November and the middle of December, contrary to seasonal tendency, and there was a considerable growth in factory payrolls. Substantial increases, it said, were reported for the automobile, textile, shoe and tire industries, although in the meat-packing industry there was a further decline from recent high levels. Employment in retail trade showed an increase, largely of a seasonal character.

The index figure for factory employment, without seasonal adjustment, was 78.1 in December as compared with 76.2 in November and 74.1 in December a year ago. The payroll index figures on the same basis were 63.2 for December, 59.5 for November and 54.5 for December, 1933.

"The general level of wholesale commodity prices, as measured by the index of the Bureau of Labor Statistics," the survey continued, "advanced considerably during the latter part of December and the early part of January, reflecting chiefly marked increases in the prices

of farm products and foods. Scrap steel prices also increased.

"In the third week of January prices of grains, cotton, hides and rubber showed a decline from the level of the preceding week. Currently, wholesale prices are 9 per cent higher than a year ago, reflecting an increase of 30 per cent for farm products, an increase of 24 per cent for foods and little change for other commodities.

"Retail prices of foods, as reported by the Bureau of Labor Statistics, increased considerably in the latter part of December, following three months of gradual decline.

"During the six weeks ended January 23, seasonal return flow of currency from circulation, further imports of gold, and disbursement by the Treasury of funds previously held as cash or on deposit with the Reserve Banks were reflected in a growth of member-bank balances with the Reserve Banks to $4,500,000,000, the highest figure on record, and an increase of their excess reserves to the high level of $2,160,000,000.

"Loans and investments of reporting member banks in leading cities increased by $350,000,000 in the five weeks ended January 16. Holdings of United States Government obligations rose $420,000,000 and an increase was shown also in holdings of obligations guaranteed by the government and in other security holdings, while loans declined by $130,000,000."

Increased Earnings Boost Whitaker Stock

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, January 28, 1935—The Whitaker Paper Company's stock on the Cincinnati Exchange the past week again attracted considerable attention. The price was lifted five points to a peak since 1931 at 35, with additional stock wanted at 36.

Offerings held at 45; quotations last Thursday were 31@ 50. The price was boosted 15 points last week, following publication of a favorable sharp increase in earnings for the last year.

The Cincinnati paper concern has transacted a large business during the year and reports prospects for this year to be better than ever. The Dayton branch has been kept busy for months.

In a general way stock prices leveled off after the forward movement which had extended through the past week. Of 15 issues traded, seven finished unchanged, while gains and losses were evenly divided among the remainder.

R. W. Shaver Goes with Ontario Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

FULTON, N. Y., January 28, 1935—Roy W. Shaver has resigned as general manager of the Oswego Falls Corporation in order to assume the position as research director in the development of the Ontario Paper Company, Ltd., of Thorold, Ont., Canada. He has been identified with the local company for several years, coming here from Oswego where he was connected with the Carlisle interests in the construction of the Taggart Paper and Bag Company. A farewell dinner was tendered him last week by officials of the local concern who expressed regret at his departure. He plans to take over his new duties early next month and will make his home at St. Catharines, Canada.

Weekly Production Ratio Report

Reports to the Paper Industry Authority show the following Over-All Production Ratios for the designated periods:

	Reporting Mills		Total Production
	Number	Capacity	Ratio
September, 1934	292–299	.....	59.4%
October, 1934	297–375	.....	64.7
November, 1934	375–391	.....	61.0
December, 1934 (a)	384–403	.....	62.1
* Week ending January 5, 1935	400	165,877	60.2
* Week ending January 12, 1935	387	161,175	64.7
* Week ending January 19, 1935	301	123,327	66.1

Detailed statistics showing the number of mills reporting by ratio groups are given below:

NUMBER OF MILLS REPORTING

	Week ending		
Ratio Limits	January 5 1935	January 12 1935	January 19 1935
0% to 50%	207	153	124
51% to 100%	193	234	177

* Subject to revision.

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours" were as follows:

	September, 1934	62 per cent
	October, 1934	63 per cent
	November, 1934	56 per cent
(a)	December, 1934	53 per cent
	January 5, 1935	49 per cent
	January 12, 1935	64 per cent
	January 19, 1935	62 per cent

(a) Capacity and percentage data excludes December 25, 1934.

Revised statistics covering delinquent mill returns will be shown in later reports.

Newsprint Stabilization Plan Awry

MONTREAL, Que., January 28, 1935—Another surprise in connection with the newsprint industry came this week when it was admitted that all the plans for an increased price for 1935 delivery had collapsed.

The company which a month or two ago had contracted to supply its American customers with their requirements in 1935 at $40 per ton, having held to the terms of that contract, other companies have felt impelled to drop the proposed extra $2.50 per ton at any rate for the first three months of 1935, the International Paper Company explaining that while tendencies towards higher costs had not abated they felt it would be unfair to their customers to increase the price while other manufacturers were delivering newsprint at the 1934 price.

Immediately upon this becoming known Premier Taschereau issued the following statement:

"Since the negotiations undertaken with the newsprint companies with a view towards stabilization of the price of paper at a reasonable basis failed to reach an amicable agreement, I am obliged to declare that during the present session of the Legislature we will be obliged to adopt legislative measures which will definitely solve this question."

Newsprint Prices Revert to Former Level

[FROM OUR REGULAR CORRESPONDENT]

The International Paper Company has notified its newsprint contract customers that the net cost of their paper during the first three months of 1935 will revert to the 1934 price level. The text of the notification follows:

"On November 10 we announced an increase, effective January 1, of $2.50 a ton in the net cost to you of newsprint under your contract with us. Since then tendencies toward higher costs have shown no abatement, but it has become clear that other manufacturers are delivering newsprint at the 1934 price to such an extent as to make the increase at this time unfair to our customers."

Thank heavens it's washable

SAYS MRS. JACKSON ☆

Jerry leaves his mark wherever he goes. Not so long ago a smudge like this would have ruined the looks of the whole room . . . required costly repairs — or possibly a complete repapering job.

But Mrs. Jackson doesn't worry. She knows that this paper can be washed as quickly and easily as woodwork. A few strokes with a wet sponge or rag and the paper is as good as new. Not a spot or streak . . . and the colors are as bright and clear as the day they were put on.

Mrs. Jackson — and thousands like her — are thanking heavens for *washable* wall paper today.

Mrs. Jackson doesn't know what goes into wall papers like this that stand up under repeated washings . . . give longer life to papering jobs . . . save care and money for the people who buy them.

But every manufacturer knows that it can't be done without proper coatings . . . high grade Casein and Formaldehyde . . . on well sized hanging stock.

We offer you a clean, uniform Casein made under rigid technical control to produce characteristics suitable for this purpose. . . . Also high quality Formaldehyde and other agents used for setting.

★ The Jacksons are a typical American family. They are neither rich nor poor. They have money to spend. They know what they want — and what they can afford. They may not buy scientifically but they buy practically . . . are alert, quick to recognize new standards. To keep the Jacksons buying your product — keep improving it. They will respond . . . with purchases.

American Cyanamid

AND CHEMICAL CORPORATION

30 Rockefeller Plaza • New York, N. Y.

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

The Adverse Function of Gases In the Manufacture of Paper*

By Judson A. De Cew[1]

Abstract

Paper has always been made in the presence of solids, liquids and gases. The solids are the fibrous materials from which the paper is made. The liquid is water and the gases are oxygen, nitrogen and carbon dioxide.

This paper is limited to a discussion of the effects from the presence of these gases, which are always entering and escaping from the pulp mixture from which paper is made. This is apparent to everyone familiar with paper making practice.

Just what function they have in interfering with the manufacture of good paper has never been fully analyzed.

There are three forms in which gases may be present in paper making. The first form is in and on the fibers themselves, especially when the fibers have been dried. The second is in the form of bubbles entrained in the aqueous mixture, and the third is in solution in the water that carries the fibers through the various processes of manufacture.

Resistance to Wetting

Whenever dried fibers are to be prepared for paper making, they must first be made wet. A sample of dried kraft pulp immersed in water will remain relatively dry over a long period, if not disturbed. This is because the air occluded within and upon the outer surface of the fiber, has more affinity for the fiber than has the water. Before the fiber can be made wet, this adhesion of the air must be overcome by mechanically beating the fiber within the water and by a series of blows dislodging the gas in the form of fine particles which may finally escape if not dissolved.

This takes both power and time and is particularly noticeable when sized papers are to be reworked, for the air adheres very firmly to a sized fiber. It is this phenomena which destroys the capillary or wetting capacity of the fiber.

After the surface of the fiber is wet, the air that is within the cell walls, providing it is a wood fiber, must be removed. This requires a squeezing action to force the air out and the water in, but until the air is removed, the fiber is compressable and has a cushioning effect against every blow delivered by the beater knives.

Before the water can have any swelling effect upon the cell walls of the fiber, it must first establish contact and the fiber must be filled with water and its compressability removed. This partially explains the difference in beating time between a dried fiber and one that has not been dried after it is produced.

Entrained Air

The retarding effect of entrained air upon the hydration of pulp, is not always as apparent as it should be. These air bubbles also have a cushioning effect against the blows from beater and jordan bars. In stock that has a tendency to froth, a slow circulating beater may puff up to such an extent that the stock will overflow or the circulation of the pulp may stop. This is more likely to occur when the beater is alkaline but the addition of alum only allows a part of the air to escape, by increasing the surface tension.

Every beater is an aerating machine which forces air into the pulp mass with every blow from the knives of the beater roll. The air that is entrained between the bars of the beater roll also retards the circulation of the stock.

Dissolved Gases

Let us now consider some phenomena that is not at all obvious and seems to have had very little consideration by investigators.

One thousand cubic feet of water will dissolve 20 cubic feet of air at 15 deg. C., and atmospheric pressure. Of this amount of air, 7 cubic feet is oxygen and 13 cubic feet is nitrogen. In the atmosphere the percentage of oxygen is 21 per cent, but in solution in water the percentage of oxygen increases to 33 per cent and this ratio holds with changes in temperature.

One ton of pulp in a beater will fill a volume of about 650 cubic feet. This means that every ton of paper stock at ordinary density is surrounded with water containing in solution about 4½ cubic feet of oxygen and 9 cubic feet of nitrogen.

Now the solubility of carbon dioxide in water is one volume of this gas to one volume of water, so it would be possible if enough of the gas were formed by the reaction

*To be presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 18 to 21, 1935.
[1] Member TAPPI, Process Engineers, Inc., Mt. Vernon, N. Y.

between sulphate of alumina and carbonates that may be present in the raw water or the paper stock, to have 650 cubic feet of this gas dissolved in the water surrounding a ton of pulp at 15 deg. C. and atmospheric pressure.

The problem we are now considering is, does the presence of these dissolved gases have any chemical effect upon the cellulose fiber or any physical effect upon the rate of absorption of water by the cellulose during the process of hydration.

The gas that may have a chemical effect upon a cellulose fiber is the dissolved oxygen. Under some conditions it is possible for the cellulose fiber to absorb this oxygen with the formation of oxy-cellulose and a subsequent degradation of the fiber.

If this action takes place at all, then it will be a continuous one because the beater roll will keep the water saturated with oxygen. This can be demonstrated by observing how quickly any reducing agent will be oxidized when mixed with the stock in the beater.

The solubility of the gases given above are those existing at atmospheric pressure, so if the pulp stock should be put under a pressure of 15 pounds per square inch, then double the amount of these gases will be dissolved. Consider, therefore, how much any chemical action that takes place will be accelerated if paper stock is jordaned under a pressure of 15 pounds per square inch which is a practice introduced within the last few years and becoming more generally adopted.

There are many papers that lose much of their physical properties shortly after they are manufactured and it is more than probable that oxidation of the cellulose is the cause.

Dissolved Inert Gases and Water Absorption

Cellulose is a colloid which tends to concentrate electrolites within itself. It has a remarkable affinity for salts of iron or the anion of an alkali. It also has the capacity to adsorb gases in considerable volume. Its osmotic pressure is largely dependent upon the amount of electrolite adsorbed. If this electrolite has no chemical action upon the cellulose, then it is possible that it may reach a concentration that will retard the rate of adsorption of the water and the swelling action of the fibers called hydration.

Therefore, in order to get the most rapid penetration of the water into the cellulose without chemical or physical change, it is desirable that the water should be as pure as possible and free from electrolites, especially dissolved gases.

The neutral salts present in paper mill water which are recirculated, are chiefly sodium sulphate and calcium or magnesium sulphate if the fresh water used contains calcium and magnesium salts.

There is no way to remove these salts once they are formed but the gases can be easily removed before or during the process of hydration. This can only be done, however, by exposing the wet pulp to pressures considerably below atmospheric so that by the expansion of the gases they can escape from the interior and the surface of the fibers and also come out of solution in the water.

Under a fairly high vacuum, the gases can be practically all removed and if the stock is then worked upon mechanically, in a way that it is possible to do within a jordan, it can be treated under pressure but in the absence of any atmospheric pressure. *(1)*

The advantages gained from an operation of this kind would be as follows:

1. There is no possibility of the oxidation or degradation of the cellulose during hydration.
2. The mixture of liquid and solid would have no compressibility and the full force of the blows from the knives of the jordan would be received by the fibers.
3. There would be nothing to retard the absorption of water by the cellulose, other than the presence of neutral inorganic salts.
4. There would be no concentration of the gases in solution owing to the increased pressure and therefore, no ebullition of gas when the pressure is removed.

The Affect of Gases Upon Drainage of Water and Felting Properties

Even if the air is all removed from the paper stock while it is being hydrated, it will be again mixed with the diluted pulp by the screening operation. This will be entrained air and not dissolved gas such as occurs in the general practice of stock preparation.

This entrained air, however, can adhere to the fibers in the form of small bubbles, which will keep the fibers from felting together and they will also retard the drainage of the water through the machine wire. Air bubbles in the process of escaping at the time of sheet formation, will push the fibers apart and cause thin spots to be left in the paper. Even if there is no froth visible on the wire, yet there are many small particles of air present, some of which will pass through the wire, but much more slowly than the water and the rest will cling to the fibers and be partly squeezed out at the press roll, but all the time they interfere with the free movement of the fibers.

As there is no time for such air to escape from the stock between the paper machine screen and the wire at atmospheric pressure, the only way to improve this condition is to pass the screened pulp through an apparatus under reduced pressure, before it goes to the paper machine. *(2)*

If such a treatment were given to the stock, it would not be necessary to use oily materials as froth killers, which are only a partial remedy and which cause other machine difficulties.

If the time ever comes when paper is made from liquids and solids only, there will be far less difficulty in operation than there is today.

Literature Cited

(1) U. S. Patent 1,704,728.
(2) U. S. Patent 1,853,859

Electro Bleaching Gas Co. Joins TAPPI

The most recent addition to the company membership of the Technical Association of the Pulp and Paper Industry is the Electro Bleaching Gas Company of New York and Niagara Falls, N. Y.

The company which is well known to the paper industry is a manufacturer of chlorine, caustic soda, caustic potash and related products.

Associated companies include the Niagara Alkali Company, Pacific Lime Company and the Kingsley Navigation Company.

S. W. Jacobs, vice-president, will represent the Electro Bleaching Gas Company in the Technical Association.

Stebbins Engineers Leave for Seattle

WATERTOWN, N. Y., January 28, 1935—John M. Cyener and M. H. Bennett, installation engineers of the Stebbins Engineering Company, left here early this week for Seattle, Wash., where they will pass the remainder of the winter on a paper mill job. Mr. Cyener recently returned from a trip to India where he spent several months installing equipment in a paper mill. The trip to Seattle is being made through Canada and the Northwest.

Beating From Standpoints of Control and Design*

By Arthur B. Green[1]

Abstract

Considering beating logically, the first problem of the mill is to control, or definitely manage, the process as it exists, to get uniform paper making characteristics in the stock up to the paper machine. Measurement of the stock for paper making qualities, not measurement of the beater or refiner or the adjustments of either, is the key to that control. Stock can be measured for paper making qualities through the viscosity principle, which is indirect but very accurate measurement. The course of treatment is important, not the conditions at any one instant.

The second problem logically is design, to make better equipment by developing it through the engineering method. This consists in separating the effect-elements of beating and making separate units on the bench scale, each unit to apply a single effect-element. Data to show separate values of effect-elements in terms of paper making qualities are fundamental to engineering design. At less than the cost of a single beater, spread over a working period of approximately two years, any mill may provide itself with engineering data sufficient for its own situation, and with designs from which to obtain stock preparing equipment specifically adapted to its own business. That process of engineering eliminates useless effect-elements, determines the right proportioning of the elements that remain, arrives at final design with least cost for purchase and operation.

The present paper is an attempt to review or survey the subject of mechanical preparation of stock for paper making in order, if possible, to find the practical and promising course for future development. Two major problems confront every mill:—how to control beating and refining; and how to do beating and refining efficiently. Control is a problem of management; efficiency is a problem of design. (The word "efficiency" was once badly corrupted when it was applied in a shallow sense to a series of foolproof ready-made systems of management, and it is not here used in that sense.) The practical and promising course for the future must be mapped for day-to-day control of the processes and for future development of design.

To set the scene, a brief glance will be taken at some of the trends since the power-driven Holländer beater came into use. Some of the new and wider fields of service to which beating and refining have been called will be suggested. Then to the body of the paper, which is the known methods of analysis of beating and refining with reference to their bearing on day-to-day practice and on mechanical design.

Epidemics in Beating

The center of the stage has been held by the Holländer since its inception nearly two hundred years ago; but there have been many who tried to supplant that unit with devices of their own. These attacks upon the Holländer appear to go by periods. In 1873, one such epidemic was recorded by Carl Hofman in his excellent book, "A Practical Treatise on the Manufacture of Paper in All Its Branches," published in Philadelphia by Henry Carey Baird.

At that time the effort was apparently centered on getting a continuous process out of beating, and it expressed itself in the Kingsland, patented in 1856; the Gould, patented 1872; and the Jordan, patented in 1858. None of these succeeded in supplanting the Holländer, but one of them gradually found its place in nearly all mills beside the Holländer, or rather in series with it. As for the situation in 1873, Hofman says the Kingsland and the Jordan were then in about equal favor, and remarks, "Both of these patent engines are excellent to brush the pulp; but though they are used for rag-pulp in some of our largest mills, they have found more favor for straw, wood, and old paper than for hard stock."

About the turn of the century another epidemic of change occurred, this time apparently centered on improving the batch unit instead of trying to change the process from batch to continuous. Grouped into this period were the Horne, in which mixing was the point of attack; the Umpherston, the Taylor, the Miller-Duplex, all aimed at better mixing along with reduced floor space; the Marx, which opened the midfeather and provided two sets of roll and bedplate; the Rabus, which again opened the midfeather and sloped the bottom for high speed circulation; the Emerson with its central roll and twin pulp channels, each around a separate midfeather; and somewhat later the Niagara, aimed at high speed circulation and high density as power economies. Out of this series no type of beater emerged as distinctly better than the Holländer and none stands as prominently in general favor for all work.

At present there appears to be another epidemic, more like the first than the second, aiming again to make beating continuous. It is too soon to pick out any typical examples, or to predict the outcome. This much may be said, that sooner or later some better means of mechanical stock preparation will be devised, and the Holländer beater will then have lived its life, for two reasons:—the Holländer is awkward, ponderous, expensive; it answers the needs of too many lines of work to be equally well fitted for them all.

The Widening Field for Beating

In that latter connection, pressure keeps increasing to supplant the Holländer. When papers were made from rags, a few of the barks, and some of the grasses, beating was concerned with long fibers. If that had continued to be the case, possibly even the Jordan would not have made its way. But the Jordan came at a time when straw and groundwood were on the increase, and the chemical processes for extracting fiber from wood were in the offing. Now, with the addition of some six different processes for reducing wood to fiber, with the addition of at least two important sources of wood, with higher refinement of cellulose extraction which offers a wide variety of grades of pulp, we have the Holländer called upon to do the mechanical preparation for products as unlike as

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facial tissue and shoe counters, starting with materials as unlike as cotton linters and scrap leather.

Attempts to Control

The need for control has always been felt. What the operator could do, whether running a beater of any type, or a refiner, was to set the running knives closer to or farther from the stationary knives; but how to do this in a predetermined manner, or so to have a given effect on every batch of stock, was a problem of great importance. How that problem was early attacked in this country is again given by Hofman, with his interesting conclusion as to the result:—

> An attempt has been made to make the mills (beaters) to some extent independent of the skill of these men by means of self-actors.
>
> The self-actor is a mechanical contrivance driven by a cord, which lowers the roll automatically. It replaces the hand-wheel and screw, by which the engineer raises and lowers the lighter, and occupies its place at the engine. The upright rod has a strong pin through it, resting on a steel ring, of which the rod is the center. The surface of this ring is shaped so that the pin, while passing once around the circle, descends gradually about ½ inch. This descent is not uniform, but curved in the same proportion to the whole time or circle, as a skillful engineer would lower the roll while working off one beater.
>
> The pin and rod have no turning movement, but the steel ring which is fastened on a worm-wheel, makes a revolution in from four to eight hours.
>
> The shaft, which carries the worm, is parallel and corresponds with a reduced extension of the roll shaft, and both are provided with a set of small cord-pulleys. The speed of the self-actor can thus be changed by the use of different pulleys and the time of an operation varied to suit the different kinds of rags; but the descent of the roll bears to the time always the same proportion, as the curve of the ring remains the same.
>
> It may answer for the manufacture of a certain kind of paper from a certain stock.
>
> But if the quality or weight of the paper to be made, or the raw material, or even the treatment of the rags previous to beating is often changed, the hand of a skillful engineer is alone able to conduct the operation so as to suit all circumstances. This is probably the reason why self-actors have not become very popular in paper mills. ("A Practical Treatise on the Manufacture of Paper," 1873, Page 81).

That comment of Hofman's requires no change even to this day to fit any subsequent attempt to control beating mechanically. The self-actor which he describes changes the distance between roll and bedplate according to a fixed curve against time. The various height recorders of today show graphically this same relative position of the roll, and sometimes they are used to specify by means of a master chart the succession of roll settings that the beaterman shall make. Aside from distance between roll and plate, attention can be turned to pressure of roll on plate. In the Marx beater there was a system of levers floating the roll bearings in their lighter bars in balance with a weight, so that while the weight remained in one position the roll would bear with uniform pressure on the plate, and this pressure could be varied by moving the weight. The E. D. Jones & Sons Co. at one time equipped beaters with a hydraulic device, which counterpoised the roll with weights, and then applied downward pressure by means of a hydraulic press. Today the Toledo Scale Company in collaboration with Strathmore Paper Company is doing the same thing to a higher precision, except that the trick consists in measuring the portion of the roll weight not taken up by presure of the plate. In that way the roll pressure is arrived at indirectly, but it is the roll pressure that is sought as the factor to be controlled. Both the distance setting of the Jordan plug, and the pressure between plug and shell have similarly been sought as means of control. Llewellyn applied power measurement with an automatic device to keep the Jordan running at constant power. Schlick did the parallel thing with the beater, providing for progresive downward adjustments of the roll as the stock yields, to keep power constant. Certain of these devices have at one time or another sold, but none have become standard practice.

Assumptions As to Control

To those charged with administering mill expenses, the attractive thing would be a simple mechanical device that could be bought at a price covered by a guarantee, that would itself retire all need of human skill and make beating sure. In the series of attempts at control through mechanical means we see this business hope expressed, but thus far the evidence gives small promise. To hope that distance setting, or power, or pressure of running knives against fixed knives, will give uniform beating is one thing; to assume that it does is another. In the only systematic investigation of those three factors as possible control factors, the data gave positive evidence against them. (*Paper*, Vol. 19, No. 23, Feb. 14, 1917, "Management in the Beater Room,") Distance, power, pressure, all leave out of account two essential factors:—beating characteristics of the pulp; density of furnish.

Density, or consistence, is the easier of these two to dispose of. To furnish to uniform density is the first step in any sound control program. To measure roll distance, or power, or roll pressure, takes no account of beater density; but density can be governed independently. Quantities of materials and water can be weighed in. With that, we can leave the density factor.

Beating characteristics of pulp are not easily disposed of. Whatever the process of manufacture, no one knows how to produce any grade of pulp to have uniform response to beating. Except in extremely few exceptional cases, pulp mills have no way of grading pulp for beating characteristics. Most pulp manufacturers believe that so long as paper stock is vegetable in origin it will be subject to natural variations. Most pulp manufacturers have means at their disposal to compensate for certain of these natural variations, coupled as they are with variations in storage, but few pulp men indeed can foresee them or follow their product through to the beaters in their customers' mills to see that other variations do not creep in. It is scarcely practical that a pulp maker should be required to add to his knowledge of pulp production an equal knowledge of beating, in all the forms it takes in all the mills to which his pulp may go. Therefore, beating is not a mechanically uniform process. Beating is instead a compensatory process. What the high grade beaterman is expected to do is to vary his mechanical treatment to compensate for variants in his pulp, as he finds them, so that his product will make a uniform sheet of paper.

What Is Uniform Beating

If beating cannot be mechanically uniform, what is uniform beating? It may be defined as beating that yields a uniform result. As a matter of business practice, that uniform result ought to show at the end of the paper machine in a paper of uniform quality, weight, physical properties. As a matter of control, however, quite the opposite may be true. A paper machine can make paper in quality and test up to the possibilities that reside in the stock after the beater room is done with it. No paper machine can do more. But unless the paper machine is perfectly adapted to its work and is run perfectly it can detract in one way or another from the possibilities that reside in the stock. Hence, a stock after beating and refining may have uniform possibilities, but the paper machine may still turn out a very variant sheet of paper. The business man will insist that "the proof of the pudding is in the eating" and keep his eye on the finished paper and its reception in his market; but his expectation of attaining uniformity will always depend on taking the mill problems logically one step at a time, each step carrying him nearer to his goal. The biggest step is beating. Beating has to be measured and judged on its own independent merits.

How to Measure Beating

Any measure of beating must measure the work done as

to kind, as to degree, toward fitting the stock for paper making. It has been urged by some investigators that the number of inch-cuts per minute, given the furnish and the beater density, measures the work done. If all stock of a grade responded equally to beating, that would be true; but under existing conditions it is not true. No paper maker is interested in the mechanics of the beater except as they result in paper-making qualities in the pulp. Inch-cuts per minute, from the standpoint of making paper is academic. To accept that as a measure of beating it must be shown that so many inch-cuts per minute produce always and invariably certain definite paper-making qualities if continued for a given period on a given stock, a proposition that experienced men know is an error. The error is readily demonstrated by making a short series of runs and varying the stock as to time in storage or dryness before furnishing, to take simple examples.

Others have urged that density and circulation are measures of work done. If a 2,000-pound beater is rearranged to hold 2,500 pounds and turn it at the same rate of circulation, the argument is that the beater has been increased 25 per cent in capacity. That would be true if the same paper-making qualities resulted from beating the higher density of furnish with the same roll, plate, and roll speed. Under existing conditions it is not true. Certain stocks may be beaten within tolerances wide enough to allow for that error, but considered as a matter of measurement it is an error. With the same furnish of stock, other things being equal, higher density results in altered paper making qualities.

Microscopists assume that fiber change measures the work done. Under a microscope the observer sees how much the fibers are altered in dimension, in form, in separation. If his slides truly represent the beater, which is unlikely, he may infer what sort of sheet the fibers will weave themselves into. Microscopic measurement, rightly interpreted, comes nearer to expressing what effect the beating has had on the stock than any measure of inch-cuts, circulation or density. To accept the microscope as measuring the work done, it must be shown that, other things being equal, a given change in dimension, form, separation of fibers corresponds invariably with the same changes in paper making qualities. Up to now apparently that proposition has not been systematically studied. Again, from the standpoint of cost, so much labor is required to secure and examine enough slides to represent a ton of pulp, that no mill would underwrite it. Finally, the microscopic process is so slow that the results would come too late.

Beating is properly measured in terms of paper making qualities, or properties. Out of the many which combine to describe a sheet of paper, certain ones can be measured with precision:—burst, fold, tear, stretch, shrinkage, bulk, sizing effect, tensile strength. These are physical in nature, and are sufficient to describe a sheet of paper satisfactorily, at least better than by any other method. How to make pulp sheets from a batch of pulp on which to perform these tests is given in TAPPI Standards T 205 m, (Tentative Standard, March 24, 1932.). Highly to be recommended in this tentative standard is the circular test sheet as against the rectangular. It seldom happens that formation at the corners of a rectangular sheet is uniform with that at the center. The tentative standard limits the tests on pulp shees to:—thickness, (bulk), tensile strength, stretch, burst, and tear. Shrinkage on drying is highly significant of work done by beating, and should be included. To include shrinkage, the tentative method of drying the sheets requires modification. Sizing effect also throws light on the kind of beating, and should be included. With that, we may leave the sheet-forming and testing for paper making qualities.

Slowness, or freeness, is important, for this determines largely the paper machine speed, and indirectly reflects many other factors in paper character, but slowness cannot be used alone to measure the "degree of beating." Whatever mechanical treatment is given the pulp, the result is in some degree slowing. But a given slowness reading tells nothing as to length of fiber or degree of hydration. Slowness progresses both ways, by shortening and by hydration. To estimate how much each has contributed to slowness in a given case, it is necessary to go through the course of treatment with periodic determinations of slowness. A slowness curve which slopes abruptly through a short time period indicates more fiber damage, or shortening, than a slowness curve which slopes gently through a longer time period. The latter indicates that hydration has contributed a larger share. The comparison is based on the final reading in both cases being the same.

Measurements of Beating Criticized

Tests on pulp sheets are rarely used to express beater and refiner treatment as to kind and degree. After all, it is said, pulp sheets are not sheets of paper. But they can throw light on beating problems even so. To wait until the sheet is finished commercially is to wait too long, if the purpose is to know what to do from hour to hour about the beating; and too many variants unrelated to beating have come into play. It can be shown that two stocks from the beater room, same furnish, treatment different, will vary from each other in the same direction and in proportional degree as the finished sheets of paper, where paper machine operation remains constant. Hence it can be forecast, knowing the tests from pulp sheets, what the paper machine can be expected to produce. This has been done repeatedly and has resulted to the benefit of machine operation in respect to speed, cost, and paper quality.

In relation to beating, final results tell only part of the story. Having got the final tests, showing what is to go to the paper machine, the next thing is to repeat. Final tests, taken at the end of stock preparation, throw almost no light on how to repeat. We have seen this in the case of slowness. As with slowness, so with other paper making qualities, any final result can be arrived at by a number of different courses. At every moment during beating, certain things have happened to the stock, certain qualities have been developed, by the course of treatment up to that moment, which cannot be undone. What can be done from that moment on depends on what has already been done. There is no single instant in the whole of the beating period that can be taken by itself as the guide when the problem is to repeat, not even the final instant. The run has to be studied as a whole. There is a course through which the beating has passed, and our process of making periodic tests on the stock together with periodic pulp sheets which we test for their physical properties is the only way we have of viewing that course. To repeat a given beating, repeat the course. Long series of careful tests in the laboratory, on an experimental paper machine with its beater and Jordan, and on the mill scale in regular production, over a period of many years, all serve to confirm this practical operating principle.

Certain critics of pulp sheets set them aside because they are not sheets of paper. To their minds the business man's viewpoint overshadows the scientific, and they say with him, "the proof of the pudding is in the eating" and with him they point to the finished product, expecting to get from that every evidence to guide them in practical manu-

facture. If it were as simple as that, very little excuse would remain to this generation that beating and paper-machining are not already under precision control. These critics have remained too far distant from the practical urge that impells men to dig for information. To get what pulp sheets tell us, we need not regard them as sheets of paper. As we have seen, we should not concern ourselves with specific properties in any one group of pulp sheets. What we look for are the tendencies, the courses of treatment, through which the stock has passed, as shown by curves made from pulp sheet tests. Pulp sheets are not sheets of paper, but that does not prevent us from using pulp sheets that taken by themselves look more like blotters to yield us invaluable data regarding stock from which the mill is making a bond.

Control by Measurement

Two things then emerge:—The significant thing about beating is the course of treatment and not the special values at any one moment in that course; and secondly, not the mechanical work done but the effect on the paper making qualities determines the result both in quality and degree.

To find some continuous measure that shows directly or indirectly this course of treatment was a problem continuously pressed for a period of five years. Such a measure must give readings running parallel with the curves showing the course of beating. If it does, then it can be used as a continuous guide by the beaterman. But this measure must measure the stock, not the beater or the beater adjustments.

Fortunately, as sometimes occurs, this long and unusually blind quest worked out simply in the end. This is not the place to enlarge on that. In theory and in practical application the solution reached for this problem has already been published. ("The Viscosity Principle in Beating," *Paper*, Vol. 21, No. 7, Oct. 24, 1917). That solution has since been carried over to better mechanical design, making use of the fractional horsepower constant speed motors available since 1917, and the beater control is now a self-driven recording gauge independent of the motion of the stock around the tub. (Figure 1) Curiously, mills have used the principle of the beater control widely for a small fraction of its purpose, namely as a consistency regulator, for the beater control was the first self-driven application of the viscosity principle. On that principle all but one of the commercial consistency regulators are made. Why mills do not equally employ the principle in the beaters for its whole value appears to be more a question of psychology than measurement. Men hesitate to assume new responsibilities, especially toward those they hire, even for the sake of better result and more earning power. (Figs. 2 and 3.) Logically the place to fix consistency is in the beater, since that is the first step in uniform beating, and then proceed with uniform beating, using the well established viscosity principle for both consistency and beater roll regulation. To smooth out stock consistencies later on is to get awkwardly out of an error there was no need of getting into.

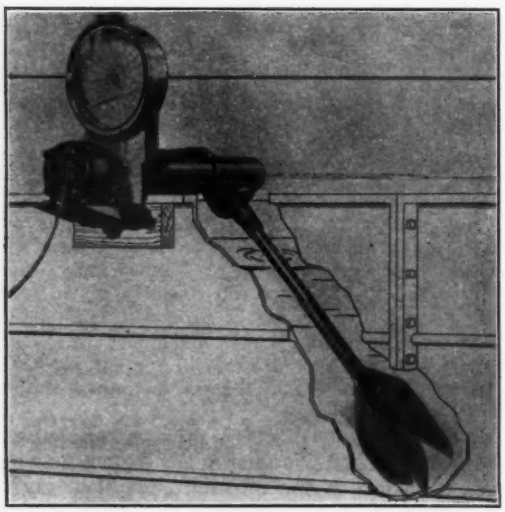

FIG. 1. ONE ARRANGEMENT OF BEATER CONTROL.
Indicating and Recording the consistency of furnish and the progress of beating as to quality and degree.

Other Data from Pulp Sheets

Besides control, the other problem, how to make better beaters and refiners, of practical importance equal to the problem of control, suffers equally from lack of analysis. We have noted the resurgent efforts of the past to attack it on the mill scale. We look inside the mills of today and sense how little, in principle or in mechanical design, has beating and refining equipment been affected. We note beaters and Jordans substantially today as they were made seventy-five years ago. Millions in the aggregate invested by hard-headed business in machinery offered as advancing the art have thus far netted nothing fundamentally better. Shall millions continue to flow without a more definite promise of return?

Before a major piece of equipment is offered, it should be possible to have behind it concrete evidence in terms of measurement, in terms of paper making qualities definitely expressed, and the cost of attaining them. Before a costly investment is solicited, every mechanical element embodied in the proffered machine should have been the subject of separate consideration and separate test of its usefulness in producing paper making qualities in pulps. Pulp sheets and the tests they can be put to, correctly interpreted, have been used to throw light on similar problems, could be used for the purpose of scientific design.

In passing, it is a question whether the machinery builder can take the responsibility for scientific design. That question is somewhat apart from the matter of right method in designing, for the right method waits only for the parties who are able and willing to use it. Pulp sheets carefully employed by any mill can yield data with which to specify the needed equipment, and can conceivably lead to that change in relation to the machinery builder where the paper manufacturer ceases to be the passive critic of what is offered and goes aggressively and intelligently after what he finds he wants. In that event, both the paper maker and the machinery builder will benefit very definitely.

Full Use of Pulp Sheets

Generally overlooked is the fact that a good modern beater, before it is in service, actually stands its owners $18,000 to $25,000, of which the beater itself is about one-fourth. Its share of the land and building, piping, pumping, spouting, chests, and its drive, account for the rest. To compare one beater with another, that scale of investment warrants the fullest use of pulp sheet data and slowness determinations, especially as that is the only way open for viewing the course through which the stock passes in a given machine under given circumstances.

The Mechanics of Beating

Pulp sheet and slowness test studies can enter a wider field. To compare one beater with another is indirect and

haphazard for advancing design. The mechanics of beating itself can be analyzed with pulp sheet and slowness tests. That takes beating element by element. It is the type of data searching which all beater design in the past has lacked.

The beater, and to nearly the same extent the refiner, mechanically considered is a combination of many elements. Not the bars and plates, plugs and shells, which are the members of the machine, but elements of effect. Stock undergoing treatment receives a number of mechanical effects, contributing in various ways and in various degrees to various of the known paper making qualities. As now designed all this is complicated and blind. Some of the effect-elements are: Cutting of fiber by knives, cutting of fiber on fiber, crushing, rubbing between hard surfaces, rubbing of fiber on fiber, pounding between hard surfaces, pounding of fiber on fiber, impact of pulp against surfaces, pressure, vacuum, gas generation, gas entrainment, gas expulsion. What any one of these does to stock toward burst, fold, tear, stretch, and the other measurable qualities, no one knows. What any one of these costs if produced to a given intensity no one knows. How to combine them for a given furnish of pulp to make a given paper no one knows. Whether any of them is useless or not worth its cost in any given case no one knows.

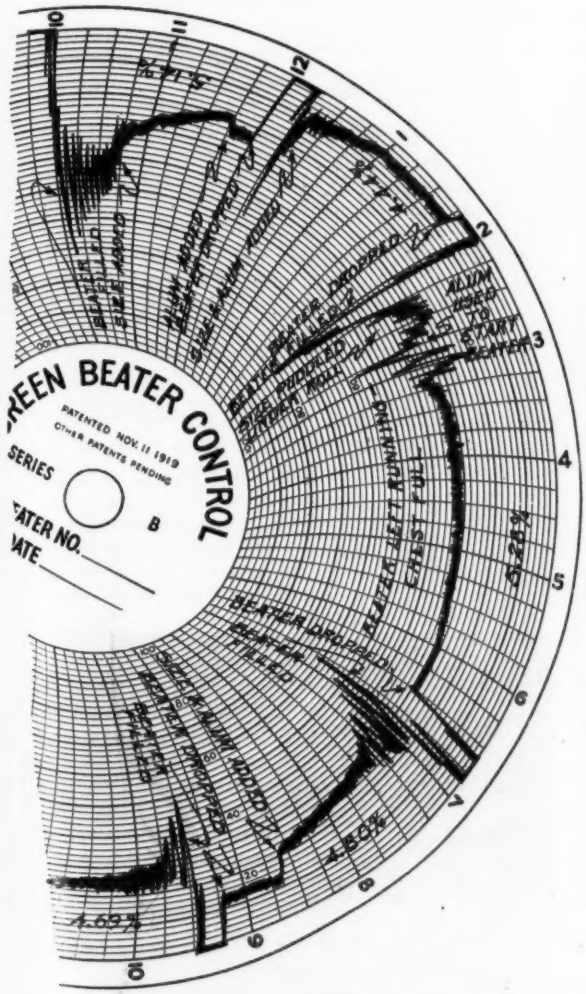

FIG. 2. BEATER CONTROL CHART.
From a kraft run, recording the operation before control was established.

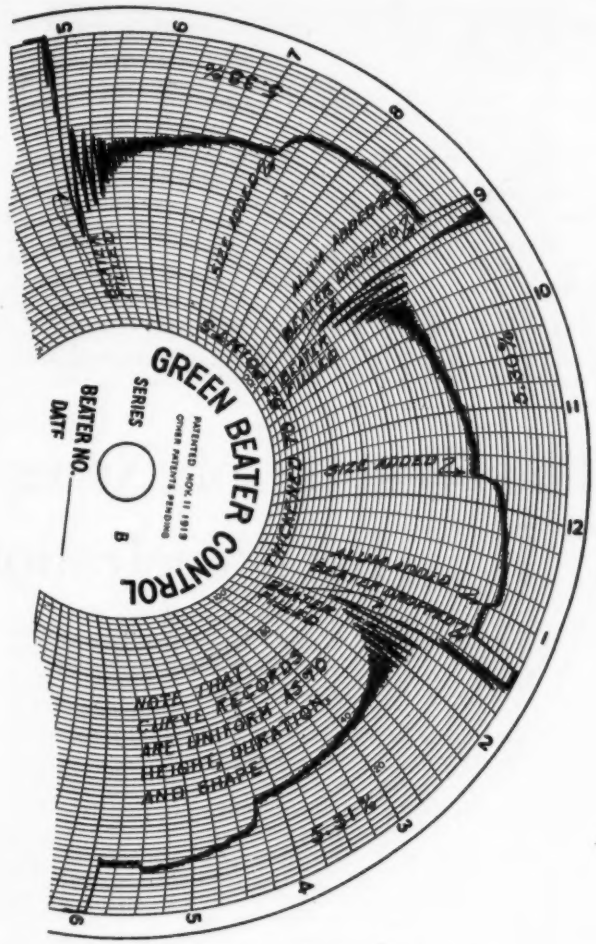

FIG. 3. BEATER CONTROL CHART.
From same beater as Fig. 2 recording same operation after control was established.

Analysis of Beating

On a bench can be arrayed a series of ten or twelve light devices. Each device is designed to apply one element mechanically to the stock. One would cut fibers with knife-edges. One would cut fibers on each other. One would crush stock between hard surfaces. There would be one device for each mechanical element of effect on stock. Admittedly they would be imperfect, but they would apply small bench motors. Simplicity and unity of function are the watchwords. The whole series of units would cover all the ascertainable effect-elements. In using these bench machines, their effects would be applied in different intensities, ranging from ridiculously low to ridiculously high.

Running these units in parallel on a given stock would yield pulp sheet data on them separately. With that in hand, running selected units in series on the given stock would yield pulp sheet data on them in combination. All possible combinations would be available. Data therefrom would be fundamental data, like the stress and strain data for steels from which bridges are made. After finding the best combination of effect-elements for the case in hand, the next step is to make a light experimental machine that

embodies that combination, checking it against the bench data to confirm its design. Through this enough stock is put to afford a brief mill test. By simple steps of this nature, costing little to take, the design is worked up to the mill-scale unit, proved theoretically and in practice at each step, leaving the minimum to chance.

By such a method of attack the way is open to side-step a fixed combination of effect-elements in one mill machine. The way is open instead to preserve the effect-elements in separate mill units so that as grades change and raw pulps change, the elements of treatment may be combined differently to suit. A mill so arranged would be flexible. Money spent on that program would amount to a fraction of the money that a beater represents, and would never need spending again. From fundamental analysis data, beating can be engineered.

Projecting this program in dollars and cents:

Bench with twelve effect-element units	$3,000.00
Stock, for one year's work.....	200.00
Engineering labor, one year.....	3,000.00
Engineering supervision, one year....	2,000.00
Electric power and upkeep.....	100.00
Total for one year's work.....	$8,300.00

Predicated on the assumption that at the end of one year the entire bench equipment would have to be made over again. Not over two years' work would be required to deal adequately with the problem of one mill. Not allowing for by-products, which in the case of research well engineered often outweigh the direct products, two years investigation can be had at about $16,000 spread evenly over the period, or about $700.00 per month all told.

The Testing of News Print for Smoothness, Ink Penetration and Opacity*

By W. G. Dodge[1] and C. E. Tarvin[1]

Abstract

Printing quality of newsprint is primarily a function of its smoothness, absorptiveness, and opacity.

A smoothness tester has been constructed which is well fitted for measuring the nature of the surface of the newsprint, and which gives readily reproducible readings.

A penetration tester has been devised that will indicate the degree of ink penetration as a function of time. The readings so obtained may be used as an indication of the absorptiveness of paper for printing ink.

A study of opacity shows the contrast-ratio method to be less accurate than is a direct measurement of the light passing through the sheet. Any advantage gained by the use of the contrast-ratio method is nullified by the use of an integrating sphere. It is possible to obtain the same percentage light transparency by direct measurement, as by use of the contrast-ratio.

Method

A problem uppermost in the minds of newspaper publishers is that of newsprint printing quality. In our laboratory we are constantly striving to improve paper-ink relations, not only by regular tests upon the materials themselves, but by a continual watchfulness over the conditions under which printing is done, in order that various theories of paper-ink interaction may be both formulated in the mind and put to test in the press-room. We not only perform the routine paper tests hitherto devised but also are in constant search for methods that will more readily reveal the paper's fitness for newspaper printing. It is particularly desirable to find in what range and between what limits the physical characteristics of paper must be held in order that the printed sheet be entirely satisfactory in quality and at the same time the newsprint be produced at a reasonable expense.

Whereas standard routine tests have considerable importance from the standpoint of checking the paper's uniformity, none of them is a determining factor in the paper's fitness for printing. There are, however, three paper characteristics that are directly related to what might be called the paper's printability. These are (1) Smoothness, (2) Ink Penetration, and (3) Opacity.

First, the paper must have smoothness sufficient so that the face of the type or cut will come in complete contact with the paper surface. Second, this smoothness must not be obtained at the sacrifice of absorptiveness, for hard tinny paper is as difficult to print on as a very rough porous one. Thus, the paper must allow the ink to penetrate it easily. Third, the matter of opacity is important as it relates to the show-through properties of the printed sheet. An opaque paper that does not reveal the printing on the underside of the sheet is desirable.

In view of the importance with which we regard these three properties, we have endeavored to develop instruments that may be used to measure them.

Smoothness

We have constructed a smoothness tester which is well adapted to the measurement of the surface condition of a news sheet. It operates on the principle of frictional resistance and is shown in Fig. 1A.

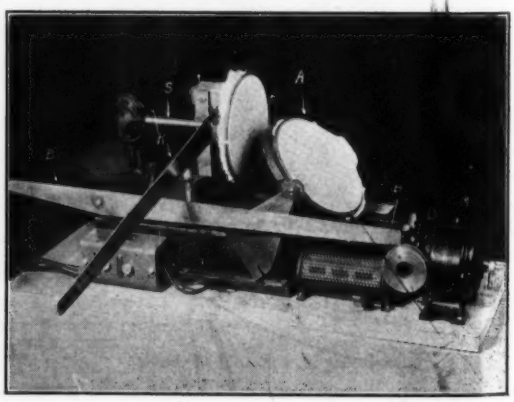

FIG. 1A

* To be presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 18 to 21, 1935.

[1] The News Syndicate Company, New York, N. Y.

Two pieces of the same sample are placed upon the steel plates A (6 inches in diameter), which have been ground to a perfect fit. These two plates are then brought into a parallel position (Fig. 1B), but as the bar B is supported by the cam D, there is no pressure exerted along the shaft S that will force the plates together. The motor M is started, the cam D revolving until the full force of the weighted bar B is exerted upon the plates A. At this point the cam leaves the bar and an electric circuit is closed, which allows a plunger T, holding the bar R, to be withdrawn, releasing it, and setting up a rubbing action between the sheets on the plates A. If the papers are smooth they will slip by each other easily, the weight W not being sufficient to restrain them. However, if they are rough this slippage will not occur and the position and magnitude of the weight W is changed until the end point is reached. The device is calibrated to give readings in units of torque (kg-cm.) exerted around the axis to which the bar B is pivoted. Readings on samples of newsprint tested range from 12.0 to 37.0.

We have compared this instrument with the Bekk tester, and, whereas there is in general good correlation between the two, this instrument gives a bit the more reproducible readings. No doubt this additional accuracy is due to a great extent to the larger samples used. It has been found that this instrument gives readings with an average deviation from the mean of not more than 3 per cent. As a means of checking the reliability of the apparatus, samples of three grades of paper were conditioned at 55 per cent r. h. and 70 deg. F. for a period of a month. During this time, at intervals of every few days, smoothness tests were made and the data obtained is plotted in Fig. 2. The maximum deviation found is that represented by the dotted line in connection with sample 1, namely about 5 per cent.

Continued checks between printing quality and paper smoothness as determined by our tester show that there is a region of smoothness most advantageous to good printing. Readings of about 30 on this instrument show the paper to be of sufficient smoothness to take an even impression and yet not so smooth that difficulties are encountered in the operation of folding and conveying mechanisms which require a certain amount of frictional resistance on the part of the paper.

Penetration

Our next investigation was in the field of ink penetration, or the absorptiveness of paper. When printing with a news ink, where the setting of the ink is entirely the result of its being pulled into the sheet and held firmly there,

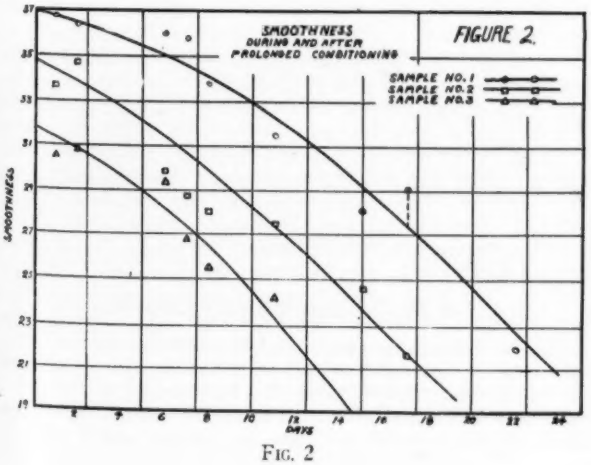

FIG. 2

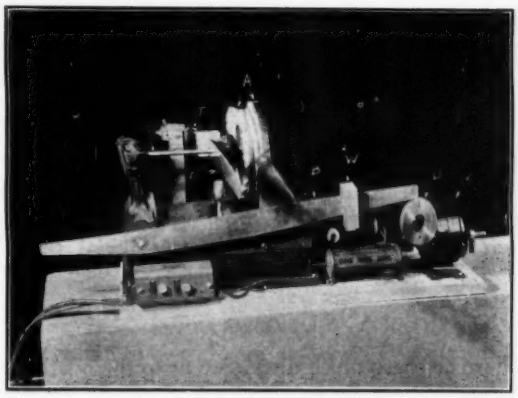

FIG. 1B

the facility with which the paper absorbs the ink is of the greatest importance. Many methods have been devised for measuring ink penetration, but none of them seems quite applicable to the news printing industry. We have tried to simulate actual conditions by bringing black news ink in contact with the sheet and measuring the time for a definite degree of penetration to take place (Fig. 5).

Fig. 3 shows the essential details of the instrument used. The ink cup I is raised until it comes in contact with the sample of paper PS. The upward movement of the cup is retarded at any desired point by the adjustable screw S. The moment the ink and paper meet, the ink starts penetrating around and into the fibres. Looking at the sample from above one would see a continual blackening of the sheet as more and more ink is absorbed. In this instrument, a beam of light from optical system O (consisting of light source and lens) is cast upon the part of the sample receiving the ink, and is reflected back upon two photoelectric cells P. As ink is absorbed by the paper the reflected light becomes less intense and the current generated by the cells decreases. Readings are taken by measuring the time for the current to drop a predetermined amount.

Fig. 4, representative of the data obtained, shows two typical curves of penetration versus time. For practical purposes, the time of penetration reported is the time taken for the current to decrease from 0.28 to 0.14 milliamperes, assuring the operator that he is measuring over a period of constant rate penetration. For example, in Fig. 4 the penetration would be expressed as 21 seconds for the felt

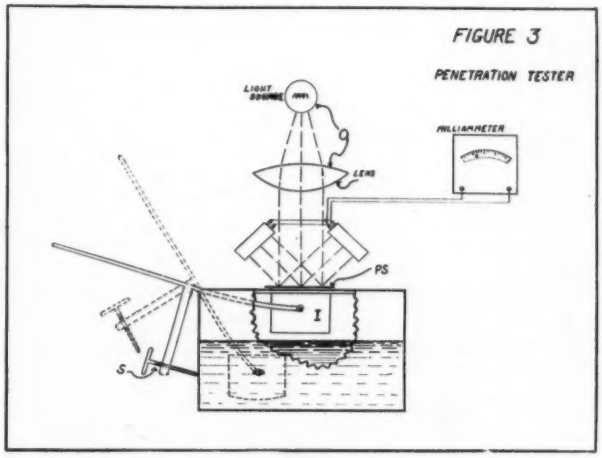

FIG. 3

side and 16 seconds for the wire side of the sheet. Were the penetration continued, a period of decreasing rate would be encountered, and the value of the readings would be nullified. The printer of newsprint is particularly interested in the rate at which the ink initially penetrates or the degree to which the ink may set in the first 2 or 3 seconds. This particular figure is impossible to obtain with any degree of accuracy. However, if the ink penetrates at a constant rate after the initial period of increasing rate is terminated, the effect of different initial penetration rates is shown at any time up until the final decreasing rate period is encountered.

Opacity

There has been much discussion as to the relative merits of measuring opacity by direct means and by the contrast-ratio method. The News laboratory has previously developed an instrument for measuring the opacity of newsprint paper. This instrument measures the passage of light from a controlled source through the sheet, the amount of light passing through being recorded photo-electrically. This method has been found admirably suited to checking the show-through tendencies of newsprint. It is nevertheless claimed that the contrast-ratio method is much more indicative of true conditions because the light source is on the same side of the sheet as the recording device, and that glossiness and other conditions of paper surface are automatically corrected for.

If the integrating sphere is used as a part of the contrast-ratio instrument, any advantage gained by the position of the light source is lost, for no matter at what angle the light is reflected from the paper, it eventually reaches the recording device. Furthermore, in that the opacity is determined by taking the difference between two relatively large numbers, there is attainable only a fraction of the accuracy possible were it registered directly as transmitted light. Assuming a transparency of 10 per cent the accuracy is a tenth of that possible when making a direct transparency reading.

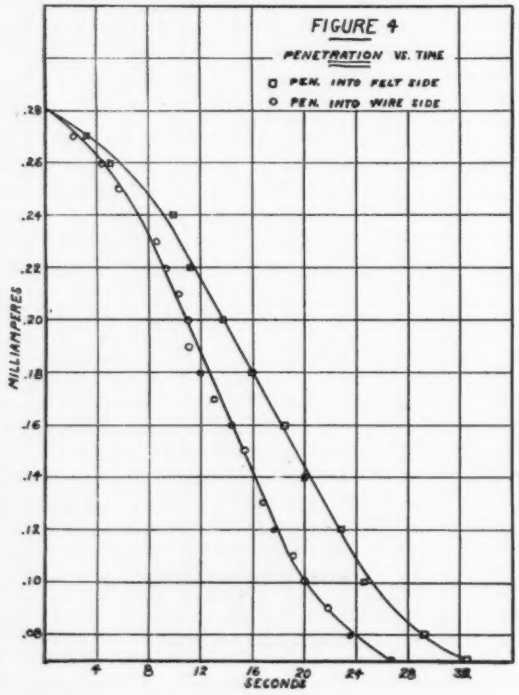

FIG. 4

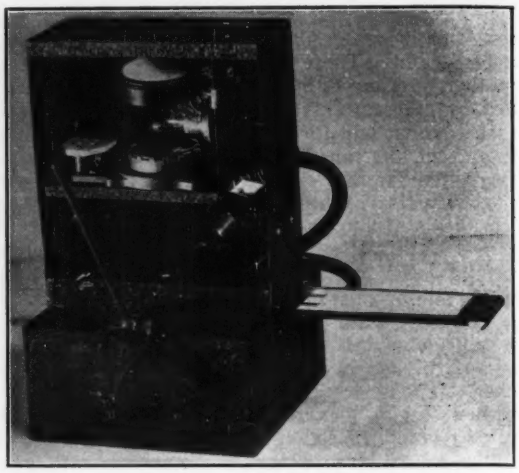

FIG. 5

Two Methods Checked

It seemed that valuable information could be obtained were the two methods checked one against the other. Our penetration tester was transformed into a contrast-ratio instrument, the reflected light being measured (1) when the sample was over a black body (container of news ink), and (2) when it was placed upon a white plate. The transparencies of the samples were then obtained on the instrument which is regularly used in our routine tests. In this instrument the percentage of light passing through the sheet is measured by two photo-electric cells placed in a *black* box and in a position corresponding to the two eyes when reading a newspaper. The transparencies thus recorded are determined only by the light which, when emitted from the surface, goes directly to the eyes and is not diffused to the surroundings. The results obtained are shown in Table I under "black box." Compared with the contrast-ratio measurements, the paper appears to be less transparent in all cases.

TABLE I.—TRANSPARENCY

Make of news print	Contrast ratio per cent	News: White box per cent	News: Black box per cent
A	13.9	13.7	11.7
B	12.5	12.5	10.7
C	15.3	15.5	14.6
D	13.1	13.8	11.2
E	10.7	11.1	9.7
F	13.4	13.2	11.4

Now, the black box of the News tester was lined with a glossy white paper, and thus made to simulate an integrating sphere; transparencies were again determined and the results tabulated under "white box." There is perfect agreement with the contrast-ratio method and it is convincing that the two mehods give like transparencies. Furthermore, these checks, obtained by completely unrelated determinations, give identical mathematical values for transparency, and must then be the true transparencies of the sheet.

Two Sets of Data Carefully Considered

We have carefully considered the relative merits of the two sets of data; that obtained with the white and with the black box, respectively. We believe that those measurements which are influenced by the extent of light diffusion are more reliable for practical determinations. Consequently, we use the black walled box in our routine tests.

Paper Testing Committee Annual Report*

By B. W. Scribner[1], Chairman

Permeability

The permeability of paper products to liquids and vapors affects the salability of a great many paper products and for this reason the committee continues to devote considerable attention to development of means for measurement of these properties.

These problems are difficult as is evidenced by the time required to develop our present method for water resistance; over ten years of continuous effort. The method for grease resistance has been given similar attention but the procedure so far developed is still somewhat unsatisfactory. At my request, F. T. Carson prepared a resumé of the information on this test so far developed and recommended certain details for further cooperative testing. It is hoped that this will lead to a definite plan of attack on this problem for the coming year, as it was forwarded for this purpose to all members of the subcommittee by H. L. Mellen, the chairman.

At my request also Carson made a critical analysis of the literature on testing the water vapor permeability of paper and other sheet materials, and the resulting report was forwarded to quite an extensive list of parties who might be interested in assisting in the development of a standard test method. I should be glad to give a copy of the report to anyone interested in cooperating in the work. The responses showed keen interest in this complicated problem, and it is expected that an active subcommittee will be doing cooperative testing on it in the near future. As in the case of grease resistance, the best that can be done at present in testing water vapor permeability is to set up a fairly satisfactory empirical method; research is required to establish a really sound method.

Another contribution of Carson to this group of problems is the instrument he developed for precise measurement of air permeability. This is eminently qualified for use as a standard but some further work is desirable to fit it better to industrial uses, and the Bureau of Standards is unable to do this at present.

The testing of the surface permeability of paper products to water has been undertaken by P. W. Codwise and his sub-committee members. Miss R. M. Cobb presented the results of some admirable work on this problem at the last annual meeting, and a suggested procedure based on these results was prepared by Codwise, and forwarded, together with suggestions by Carson, for the consideration of his committee members. Initiation of cooperative trials of proposed testing procedure for this purpose should be possible shortly.

It is planned to formulate a method for testing blood resistance of butcher's wrapping paper, according to the method of Libby and Parkinson.

Printing Properties

B. L. Wehmhoff, chairman of the Sub-Committee on Printing Properties, has reported the results of further research which has led to definite recommendations on his part, of means of evaluating the printing quality of paper. He has related the results of experimental printings with tests of the papers and has concluded that tests for oil permeability, printing smoothness, density, basis weight, and thickness serve to define printing quality, and has suggested tentative standards for the two testing procedures not yet standardized—oil permeability and smoothness.

W. G. Dodge and C. E. Tarvin also have submitted a report to the committee, describing test procedures and instruments developed by them for testing the smoothness, ink penetration, and transparency of newsprint.

It is believed that these two reports, which will be presented at a sectional meeting, will lead to very definite progress in this important branch of paper evaluation.

Physical Methods, General

Under the direction of James d'A. Clark the Sub-Committee on Physical Methods completed revisions of the official methods for sampling, conditioning, basis weight and tearing strength, and these have been adopted as tentative standards. Proposed revisions of the present methods for tensile strength and bursting strength, and proposed methods for stretch, dirt and stiffness are being studied by means of cooperative testing. Progress is being made in revision of the methods for thickness and bulk. An obvious defect in these methods is the wide tolerance permitted in the pressure applied to the paper in making the tests, and it is hoped that this can be reduced to rather narrow limits. This problem is still complicated, however, by the wide differences in the pressures applied by different commercial instruments and the fact that in spring-tension dial micrometers, the pressure usually increases considerably as the thickness measured increases.

As Mr. Clark is trying to correlate American and European practices in physical testing, considerable effort and time are required in the development work of his sub-committee. Such effort is well worth while, however, as test data that are internationally comparable are well worth while.

Optical Methods

During the past year D. B. Judd and R. S. Hunter, of the National Bureau of Standards have been making intensive studies of problems related to measurement of optical properties of paper, in cooperation with this committee and the Committee on Color. Judd developed information on the testing of opacity and whiteness, which is of considerable value in the further development of such methods. The results of his study of sources of error in the TAPPI method of testing opacity made possible a revision of the method which brings the accuracy of the test results within satisfactory limits. He also developed opal-glass standards for calibration of opacity testing instruments, and at my request, made a thorough study of the literature on gloss measurements relative to whether the TAPPI method needed revision. His conclusions are as follows: "I see no strong reason for changing from the polarization instrument which has served with fair satisfaction already for a number of years. It is true that the non-polarization type instrument is more flexible than the polarization type and it is reasonable to believe that a thorough study of the arbitrary angular specifications would reveal a combination of choices more favorable than the choices of the present polarization instrument; but the improvement to be expected is slight and seems

* To be presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 18 to 21, 1935.

[1] National Bureau of Standards, Washington, D. C.

not worth a fraction of the cost of replacing the polarization instruments now in use with suitably designed non-polarization gloss meters."

Hunter's work has dealt with reflection measurements in general, and he has devised instruments for such measurements.

Microscopical Methods

With the assistance of his sub-committee members, John B. Calkin prepared a revision of the section of the TAPPI publication "Paper Testing Methods," dealing with microscopical testing. The revision was published in THE PAPER TRADE JOURNAL. As "Paper Testing Methods" is out of print, consideration is being given to preparation of the revised material for inclusion in a tentative standard for microscopical testing. Dr. Calkin also prepared a discussion of certified stains for fiber differentiation, for the consideration of TAPPI relative to cooperation with the Biological Stain Commission, which is standardizing stains used for microscopical work. Progress has been made in the study of the use of weight factors in the determination of fiber composition of paper.

Chemical Methods

The Sub-Committee on Chemical Methods, P. F. Wehmer, Chairman, completed tentative methods for arsenic and pH. One point in the latter that is doubtful is the use of high temperature in making the extraction, as several investigators have reported that hot extraction of the paper hydrolyzes aluminum compounds, thus causing a low pH value. Similarly in the method for active sulphur, it has been claimed that sulphur is volatilized from inactive sulphur compounds when paper is treated with acid according to the present procedure. These matters are listed for investigation. Formulation of a revised method for resin along lines suggested by Sutermeister and Torrey, of a tentative method for titanium pigments based on the method of Jarmus and Willets, and of a tentative method for zinc sulphide pigments based on Steel's method, is in progress. Tentative revisions of the methods for alpha cellulose and copper number were completed but it was considered desirable to withhold them until further experimental data on some of the provisions became available.

Status of Paper Testing Methods

Following is a summary of the work completed during the past year. Tentative revision of the method for amount of mineral coating and a tentative method for amount of acid-soluble iron were approved by the committee in January. Methods for ink absorption of blotting paper, water absorption of bibulous papers, and water resistance of paper and paperboard were adopted as official standards in March. All of the foregoing have been printed in loose-leaf form for the Tappi Manual of Standards. Tentative standards were completed for pH of paper extracts (published in PAPER TRADE JOURNAL, Sept. 6, 1934), and for arsenic (not yet published). Tentative revisions were completed of the methods for sampling, conditioning, basis weight (published in PAPER TRADE JOURNAL, Nov. 22, 1934), tearing strength and opacity (not yet published). The total methods completed, therefore, amounted to 6 revisions, 3 new official standards, and 3 new tentative standards.

A tabulation of the status of the development of paper testing methods was made jointly with R. C. Griffin, Chairman of the Testing Division. In doing this consideration was given to the properties of papers considered important by the industry, as indicated by the replies to the questionnaire on the subject promulgated by P. K. Baird, chairman of the Use Requirements Committee, as summarized by him in PAPER TRADE JOURNAL, Jan. 11, 1934. The tabulation was submitted to the committee members for suggestions as to how the obtaining of information needed for additional methods might be expedited. A similar tabulation, revised to bring it up to date, follows. It is included herein as it gives quite a complete picture of what has been accomplished and what remains to be done in this direction. With the elimination of duplication of terms evidently referring to the same property, it covers Baird's list of properties quite thoroughly.

STATUS OF PAPER TESTING METHODS RELATIVE TO TAPPI STANDARDIZATION OF METHODS

A. TAPPI METHODS AVAILABLE

1. Sampling
2. Fiber Composition
3. Conditioning
4. Bursting strength
5. Tensile strength
6. Paraffin (quantitative)
7. Active Sulphur (quantitative)
8. Amount of Mineral Coating
9. Resin (quantitative)
10. Machine Direction
11. Ream Weight
12. Thickness
13. Moisture
14. Ash (quantitative)
15. Tearing strength
16. Casein (qualitative)
17. Rosin (qualitative)
18. Nitrogenous Proteinaceous Matter (qualitative)
19. Nitrogenous Proteinaceous Matter (quantitative)
20. Starch (qualitative)
21. Starch (quantitative)
22. Analysis Mineral Coating
23. Analysis Mineral Filler
24. Folding Endurance
25. Gloss
26. Opacity
27. Bulk
28. Roofing Felt; Saturating Properties
29. Total Acidity
30. Alpha Cellulose
31. Copper Number
32. Ink Absorption of Blotting Paper
33. Water Absorption of Bibulous Papers
34. Water Resistance of Paper and Paper Boards
35. Acid-Soluble Iron
36. Hydrogen-Ion Concentration (pH) of Paper Extracts
37. Arsenic

B. METHODS BEING DEVELOPED

(1) Grease Resistance, (2) Penetration of Printing Ink, (3) Printing Smoothness, (4) Printing Opacity, (5) Permeability of Paper Surfaces to Water, (6) Water Vapor Permeability, (7) Blood Resistance of Butcher's Wrapping Paper, (8) Stretch, (9) Cleanliness, (10) Stiffness, (11) Weight Factors for Fiber Composition of Paper, (12) Analysis of Ash Containing Zinc Sulphide Pigments, (13) Analysis of Ash Containing Titanium Oxide Pigments, (14) Density.

C. METHODS FOR WHICH BASIC DATA ARE PROBABLY AVAILABLE

(1) Air Permeability, (2) Sheetage, (3) Footage, (4) Wet Tensile Strength, (5) Heat Insulation, (6) Electrical Resistance, (7) Flexural Strength.

D. METHODS FOR WHICH BASIC RESEARCH DATA ARE PROBABLY REQUIRED

(1) Erasing Quality, (2) Expansion with Moisture Increase, (3) Color, (4) Formation, (5) Hardness, (6) Expansion with Temperature Increase, (7) Curl, (8) Two-Sidedness, (9) Permanence.

The foregoing shows that of 67 properties listed as requiring methods for their measurement, 37 TAPPI methods are available, 14 methods are in process of development, the required basis data are probably available for 7 more, and 9 require such data.

It is felt that the progress of the committee work during the year has been good, particularly in view of the reduced personnel of many of the cooperating laboratories, and I wish to express my appreciation of the excellent cooperation of the members of the committee, sub-committees, and others mentioned in the report, who made the progress possible.

Coordination of TAPPI and A.S.T.M. Methods

Proposed TAPPI methods are now being submitted to A.S.T.M. committees interested for their criticism, by P. F. Wehmer, who was appointed by the two organizations to have charge of the effort to correlate their methods as far as possible. While this serves for the time being, it is hoped that some arrangement can be effected which will result in even closer cooperation in the standardizing activities of mutual interest.

Pulp Testing at TAPPI Meeting

Each year witnesses progress in the knowledge of wood pulp properties. To date much attention has been paid to sheet making. This led to the TAPPI tentative standard based on the use of the British sheet machine. This year attention has been focused on pulp processing and at the annual meeting of the Technical Association of the Pulp and Paper Industry to be held at the Waldorf-Astoria Hotel, New York, February 18 to 21, 1935, there will be two papers presented.

C. W. Morden, president of the Morden Machines Company, and George H. McGregor of the Weyerhaeuser Timber Company, paper on the "'Stock-Maker' Precision Laboratory Beater." This paper relates to the use of the laboratory size vertical jordan which was displayed at the recent meeting of the Technical Association at Portland.

James d'A. Clark of the Scott Paper Company, Chester, Pa., will discuss "The Kollargang Method of Processing Pulp." The apparatus consists of an annular V-shaped trough in which three runners, having a fixed weight, are caused to positively rotate; the working edges being not subject to change. Propellers between the runners keep the stock well separated during treatment. The apparatus holds from 30 to 150 grams of pulp and will handle pulp of a consistency of up to 5 per cent.

Experiments showing the results of varying the weight, temperature and speed of rotation of the rolls and propellers and other factors are shown, also the accuracy of repetition over a long time.

The Pulp Testing Committee is composed as follows: H. W. Morgan, Institute of Paper Chemistry, Chairman; R. H. Wiles, International Paper Company; D. E. Cable, U. S. Rubber Company; J. d'A. Clark, Scott Paper Company; G. P. Genberg, Uddeholms Company, Skoghall, Sweden; W. F. Gillespie, Bogalusa Paper Company; W. O. Hisey, N. Y. S. College of Forestry; G. H. McGregor, Weyerhaeuser Timber Company; M. D. Reuben, York Haven Paper Company; H. A. Rothchild, Kimberly-Clark Corporation; C. C. Schneider, Hawthorne Paper Company; and C. A. Seborg, Forest Products Laboratory.

Carl Stripe Joins Combustion

Carl Stripe, for the past two years assistant to the vice president of the Davis Coal and Coke Company, has joined the sales organization of Combustion Engineering Company, Inc. He will be in charge of industrial stoker sales under the direction of H. S. Colby, general sales manager, and will give particular attention to the unit which has been developed to afford small industrial and heating plants many of the mechanical and economic advantages possessed by larger stoker installations. Mr. Stripe has long been identified with the steam-plant field especially in the application of stokers and the adaptation of particular coals to stoker firing. Prior to his connection with the Davis Coal and Coke Company he was for a number of years successively sales engineer, district sales manager and publicity manager of Combustion Engineering Corporation.

To Negotiate Canadian Trade Agreement

WASHINGTON, D. C., January 30, 1935—Secretary of State Hill has announced trade agreement negotiations with Canada. Hearings will be held on March 18.

Our chief imports from Canada include newsprint paper and woodpulp. Decreases in the value of imports from Canada into the United States show that in 1929 the value of woodpulp and newsprint dropped from $183,000,000 to $84,000,000 in 1933.

Paper Merchants to Meet Four Days

A. H. Chamberlain, executive secretary, has sent out the following announcement to members of the National Paper Trade Association:

At an executive meeting held this week, it was definitely decided to extend the Convention program from three days to four days. This seemed absolutely necessary in view of the meetings that must be arranged and the amount of work to be done, not only in National Association affairs and in the Fine and Wrapping Divisions through committee activities, mill conferences, etc., but also in providing for the requirements of the Code Authority. Recent programs have been so crowded that there have been numerous undesirable overlaps and we have all been strained to the point where highest efficiency and best results were impossible.

The Convention therefore will cover Monday, Tuesday, Wednesday and Thursday, February 18 to 21 inclusive. As previously announced, it will be held at the Waldorf-Astoria, in this city, which offers minimum rates of $5.00 per day single, and $7.00 per day double, to all who desire them.

Attendance, including the manufacturers, will doubtless be the largest ever, so reservations should be made promptly.

Special railroad rates have been arranged for and certificates with explanatory instructions as to obtaining such rates are now in preparation and will be mailed you shortly.

From every point of view, it is believed that this will be the most important and helpful Convention ever held by the Paper Industry. No member house can afford not to be represented.

Canadian Technical and Woodlands Election

W. S. Kidd of the E. B. Eddy Company, Hull, P. Q. was elected chairman of Technical Section of the Canadian Pulp and Paper Association at the annual meeting of that organization at Montreal, January 23, 1935. Mr. Kidd is a member of the executive committee of the Technical Association of the Pulp and Paper Industry and succeeds F. L. Mitchell of the International Paper Company, who was chairman during the past two years.

Three councillors were elected, namely, T. M. Barry of Fraser Companies, Ltd., Edmundston, N. B.; G. I. Hoover, Provincial Paper Mills, Thorold, Ontario, and G. J. Lawe, International Paper Company, Gatineau, P. Q.

W. A. Delahey of the International Paper Company, Gatineau, P. Q. was elected chairman of the Woodlands Section of the Canadian Pulp and Paper Association.

Demonstration of "C" Stain

Dr. John Graff of the Institute of Paper Chemistry will present two papers at the annual meeting of the Technical Association of the Pulp and Paper Industry at the Waldorf-Astoria in New York, Monday, February 18, 1935.

These will deal with fiber analysis and will feature the new "C" stain that has been developed at Appleton by Dr. Graff.

In order that members of TAPPI who are interested may have a chance to see a demonstration of the method, a microscope will be set up in the Barclay Hotel, which will be available during the daylight hours from Monday through Thursday, February 18 to 21. This should lead to a better understanding of the utility of the "C" stain.

Sonoco, Climax and Lowell Combine

The merger formed by the combination of Sonoco Products Company, Hartsville, S. C.; Climax Tube Company, Mystic, Conn., and Lowell Paper Tube Corporation, Lowell, Mass., has just been announced by J. L. Coker, president of Sonoco Products Company.

Climax Tube Company and Lowell Paper Tube Corporation are well and favorably known throughout New England, the Middle Atlantic states and other sections as manufacturers of high quality Tubes, Cores and other paper products.

Sonoco Products Company, manufacturing practically all types of paper carriers for the textile industry, is the largest manufacturer of this type of product in America.

With this merger Sonoco now has plants located at Hartsville, S. C., Hockingham, N. C., Garwood, N. J., Mystic, Conn., Lowell, Mass., and Brantford, Ontario, all plants being conveniently located to serve different sections of both the textile and paper industries.

The plants located at Garwood, N. J., Mystic, Conn., and Lowell, Mass., will be designated as the Climax-Lowell Division of Sonoco Products Company, and in order to improve service and facilitate the handling of business in New England and the Middle Atlantic States, sales and management offices for that division will be maintained at Mystic, Conn., under the direction of G. W. B. White, formerly president of Climax and Lowell. The Southern territory will be served from the Hartsville and Rockingham plants. Executive offices for the combined unit will be maintained at Hartsville.

Mr. Coker, in announcing this merger, said, "We consider this one of the most forward and constructive steps which we have taken in recent years. With six strategically located plants, we will be able to render service in keeping with the tempo of the times and meet the ever increasing demand for quicker deliveries."

With the merging of the experience, facilities, resources and personnel of these companies, the textile industry is assured a strong, dependable source of supply, equipped to give most efficient service and to meet the most exacting requirements for all types of paper carriers.

Sonoco manufactures a complete line of paper carriers, including Cones, Tubes, Cores, Bottle Bobbins and Spools, also Underclearer Rolls and Cork Cots.

Ohio Men Get Patents

DAYTON, Ohio, January 28, 1935—A paper-making machine which involves, according to patent examiners, 18 separate items of originality, brought a patent during the past week to Herman L. Kutter, of Hamilton.

The patent was one of two issued to Hamilton inventors during the week, according to the U. S. Patent Office.

The other went to John W. Bolton, of Hamilton, in collaboration with Sylvester Weigand, of Cincinnati. Messrs. Bolton and Weigand invented an alloy composed of silicon, nickel, and copper, which is said to be ductile, and capable of being softened and machined without hot rolling after being heat treated.

The patent issued to Mr. Kutter covers specifically a wet end construction for a Fourdrinier machine. It was issued under an application filed May 29, 1933, and has been assigned to the Black-Clawson Company of Hamilton.

Messrs. Bolton and Weigand were granted only two claims for originality in connection with their patent, issued under an application filed May 11, 1933. Their assignee is The Lunkenheimer Company of Cincinnati.

Lower Prices by Mass Production

American Paper Machinery and Engineering Works, Inc., announce that they are now building APMEW Machinery with mass production, and thereby lowering their prices, similar to automobile manufacturers building automobiles with mass production to effect lower costs and thereby lower selling prices.

Mr. Wells, president of American Paper Machinery and Engineering Works, Inc., was for a number of years associated with the Franklin Automobile Company, Syracuse, N. Y., and also with the Chalmers Motor Company, Detroit, Mich., which is now the Chrysler Motor Company, and has a wide experience in the mass production of automobiles. The American Paper Machinery and Engineering Works, Inc., are now taking advantage of his wide experience in mass production to assist the paper industry with better and more economical machinery. Added to this good experience Mr. Wells has worked in more than two hundred paper mills in U. S. A. and foreign countries, and expertly understands the needs of the paper industry. APMEW Machinery has been developed and built for many years, for producing best results with lowest production costs, and thus is receiving increasing interest from the paper mills of foreign countries as well as U. S. A.

For effecting better results with lowest production costs, APMEW announce five new APMEW Machines for 1935: 1. APMEW Centri-Pulsating Screen. 2. APMEW Noiseless Diaphragm Screen. 3. APMEW 1935 Continuous Beater. 4. APMEW 1935 Centrifugal Stock Pumps. 5. APMEW 1935 Continuous Filter.

APMEW Machinery is manufactured in Canada at Canada Iron Foundries, Ltd., Three Rivers, P. Q.; in Sweden at A-B Karlstads Mekinska Werkstad; and in U. S. A. at Glens Falls, N. Y.

Ohio TAPPI to Meet February 15

The members and friends of the Technical Association of the Pulp and Paper Industry located in the Miami Valley will hold the second meeting of the proposed TAPPI Ohio Section at the Manchester Hotel, Middletown, Ohio, Friday, February 15, 1935. The meeting will be preceded by a dinner at 6:30 P. M.

Dr. Harry F. Lewis, Dean of the Institute of Paper Chemistry, Appleton, Wisconsin, will be present and will present a paper on the "Micro-Structure of Papermaking Fibers."

Dr. Carl E. Curran, in charge of the Pulp and Paper Division of the U. S. Forest Products Laboratory, Madison, will talk on Pulp and Paper Research at the Forest Products Laboratory.

All who intend to be present at the meeting should notify Vincent Waters, chief engineer of the Wrenn Paper Company, Middletown, Ohio, not later than February 13. Anyone unable to attend the dinner will be welcome to attend the meeting at 8:00 o'clock.

Salesmen's Luncheon Program

The Hon. John Dickinson, Assistant Secretary of Commerce, will be the speaker at the annual luncheon of the Salesmen's Association of the Paper Industry, on Tuesday, February 19, at 15:15 P.M., in the Grand Ballroom of the Waldorf-Astoria Hotel, New York.

Dr. E. O. Merchant, Room 2922, Graybar Building, New York, is handling all reservations for tables.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JANUARY 26, 1935

CIGARETTE PAPER

De Manduit Paper Corp., Pr. Roosevelt, Havre, 198 cs.; De Manduit Paper Corp., Manhattan, Havre, 152 cs.; American Tobacco Co., Indep. Hall, Bordeaux, 300 cs.; Champagne Paper Corp., Indep. Hall, St. Nazaire, 68 cs.

WALL PAPER

Titan Shipping Co., Bergensfjord, Oslo, 4 cs.; S. K. Lonegran, Bergensfjord, Oslo, 1 cs.; ———, Pr. Roosevelt, Havre, 3 cs.; ———, Manhattan, Havre, 9 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., American Trader, London, 6 bls., 1 cs.

NEWSPRINT

———, Bergensfjord, Oslo, 230 rolls.

PRINTING PAPER

International F'd'g. Co., Black Hawk, Antwerp, 3 cs.; Japan Paper Co., Manhattan, Hamburg, 5 cs.

WRAPPING PAPER

F. C. Strype, Kambove, Antwerp, 15 cs.

KRAFT PAPER

Ace Paper Co., Bergensfjord, Oslo, 6 bls.; Walker Goulard Plehn Co., Pr. Roosevelt, Hamburg, 595 rolls.

FILTER COMPOUND

Globe Shipping Co., Pr. Roosevelt, Hamburg, 34 pkgs.

FILTER PAPER

H. Reeve Angel & Co. Inc., Carinthia, Southampton, 10 cs.; H. Reeve Angel & Co. Inc., Berengaria, Southampton, 20 bls., 8 cs.

DRAWING PAPER

H. Reeve Angel & Co. Inc., Carinthia, Southampton, 9 cs.; Devoe & Raynolds Co., American Trader, London, 3 cs.; E. H. Ehlers, Europa, Bremen, 8 cs.

BARYTA COATED PAPER

Globe Shipping Co., Europa, Bremen, 28 crates, 2 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Black Hawk, Antwerp, 13 cs.; Chas. Happel, Manhattan, Hamburg, 3 cs.

PHOTO PAPER

Medo Photo-Supply Co., Berengaria, Southampton, 1 cs.; J. J. Gavin, Berengaria, Southampton, 6 cs.; Ozalid Corp., Europa, Bremen, 1 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Laconia, Liverpool, 24 cs., (duplex); B. F. Drakenfeld & Co., Laconia, Liverpool, 2 cs., (simplex).

DECALCOMANIAS

Sellers Transportation Co., Europa, Bremen, 43 cs.

TRANSFER PICTURES

Rohner Gehrig & Co., Europa, Bremen, 11 cs.

TRANSFER PAPER

Hensel Bruckman & Lorbacher, Manhattan, Hamburg, 21 cs.

TISSUE PAPER

American Express Co., Pr. Roosevelt, Hamburg, 12 cs.; W. J. Byrnes, Berengaria, Southampton, 1 cs.; B. F. Drakenfeld & Co., Laconia, Liverpool, 6 cs.

STENCIL PAPER

———, Black Hawk, Antwerp, 7 cs.

WRITING PAPER

Globe Shipping Co., Manhattan, Havre, 1 cs.

NOTE PAPER

H. Reeve Angel & Co. Inc., Carinthia, Southampton, 1 cs.

BRISTOL BOARDS

Keuffel & Esser Co., American Trader, London, 2 cs.

DESIGN PAPER

Wilkesbarre Lace Manfg. Co., Laconia, Liverpool, 1 cs.

IVORY BOARD

R. Wilson Paper Corp., Blommersdyck, Rotterdam, 14 cs., 26 rolls.

PASTE BOARD

Phoenix Shipping Co., Pr. Roosevelt, Hamburg, 30 bls., 31 cs.; ———, Pr. Roosevelt, Hamburg, 23 bls.; Phoenix Shipping Co., Manhattan, Hamburg, 30 bls.

STRAW BOARDS

———, Blommersdyck, Rotterdam, 608 bdls.

MISCELLANEOUS PAPER

Corn Exchange Bank Trust Co., Noshiro Maru, Kobe, 7 cs.; T. N. Fairbanks, Noshiro Maru, Yokohama, 2 cs.; Coty Processing Co., Lafayette, Havre, 2 cs.; ———, Berengaria, Southampton, 7 cs.

RAGS, BAGGINGS, ETC.

———, Black Eagle, Rotterdam, 83 bls. pickers; S. Birkenstein & Sons, Motomar, Barcelona, 101 bls. rags; S. Birkenstein & Sons, Motomar, Barcelona, 113 bls. bagging; ———, Motomar, Barcelona, 67 bls. bagging; R. Blank, Motomar, Barcelona, 49 bls. fustians; Leigh Textile Co., Motomar, Barcelona, 47 bls. cotton waste; W. T. Fair Co., Noshiro Maru, Osaka, 10 bls. rags; H. J. Fawcett, Black Hawk, Antwerp, 84 bls. jute waste; Royal Manfg. Co., Black Hawk, Antwerp, 174 bls. cotton waste; Hicks Cos-

tarino & Co. Inc., Black Hawk, Antwerp, 74 bls. paper stock paste; Leigh Textile Co., Black Hawk, Antwerp, 47 bls. cotton waste; N. Schwab & Son, Black Hawk, Antwerp, 42 bls. cotton waste; Darmstadt Scott & Courtney, Black Hawk, Antwerp, 28 bls. bagging; E. J. Keller Co., Inc., Exeter, ———, 322 bls. rags; New England Waste Co., Blommersdyck, Rotterdam, 62 bls. pickers; N. Schwab & Son., Blommersdyck, Rotterdam, 132 bls. cotton waste; J. J. Ryan & Sons, Blommersdyck, Rotterdam, 104 bls. cotton waste.

HIDE GLUE

———, Lucia C, Trieste, 100 bags.

OLD ROPE

Banco Coml. Italiane Trust Co., Cristobal Colon, Santander, 49 coils; Banco Coml. Italiane Trust Co., Cristobal Colon, Gijon, 133 coils; Banco Coml. Italiane Trust Co., Blommersdyck, Rotterdam, 218 coils; Banco Coml. Italiane Trust Co., Lucia C., Trieste, 92 bls.

WOOD PULP

The Borregaard Co. Inc., Bergensfjord, Sarpsborg, 6 bls. sulphite; The Borregaard Co. Inc., Bergensfjord, Sarpsborg, 538 bls. sulphate; Perkins Goodwin & Co., Bergensfjord, Drammen, 300 bls. sulphite; Irving Trust Co., Bergensfjord, Oslo, 1590 bls. mechanical pulp; M. Sone, Pr. Roosevelt, Hamburg, 3316 bls. wood pulp, 515 tons; Central Hanover Bank Trust Co., Pr. Roosevelt, Hamburg, 509 bls. wood pulp, 78 tons; Johaneson Wales & Sparre, Inc., Wanja, Sundsvall, 2125 bls. sulphite, 425 tons; Johaneson Wales & Sparre, Inc., Wanja, Sundsvall, 150 bls. sulphate, 25 tons; Brown Bros. Harriman & Co., Wanja, Sundsvall, 250 bls. chemical pulp, 50 tons; ———, Wanja, Sundsvall, 375 bls. chemical pulp, 75 tons; Johaneson Wales & Sparre, Inc., Wanja, Hernosand, 1050 bls. sulphate, 175 tons; Bulkley Dunton & Co., Wanja, ———, 2125 bls. wood pulp, 431 tons; Castle & Overton, Inc., Blommersdyck, Rotterdam, 1024 bls. wood pulp; Perkins Goodwin & Co., Manhattan, Hamburg, 700 bls. wood pulp, 112 tons; ———, Lucia C., Trieste, 120 bls. wood pulp.

WOOD PULP BOARDS

Lagerloef Trading Co., Pr. Roosevelt, Hamburg, 68 bls.

ALBANY IMPORTS

WEEK ENDING JANUARY 26, 1935

Pagel Horton & Co. Inc., Lionel, Gefle, 1250 bls. wood pulp; Perkins Goodwin & Co., Lionel, Norrsundet, 5250 bls. wood pulp; Perkins Goodwin & Co., Lionel, Sundsvall, 5700 bls. wood pulp; J. Andersen & Co., Lionel, Hernosand, 4500 bls. wood pulp.

PORTLAND IMPORTS

WEEK ENDING JANUARY 26, 1935

Perkins Goodwin & Co., Lionel, Sundsvall, 540 bls. sulphite, 90 tons; ———, Lionel, Hernosand, 450 bls. sulphite, 75 tons; Price & Pierce, Ltd., Lionel, Hernosand, 3600 bls. sulphite, 600 tons; Price & Pierce, Ltd., Lionel, Hernosand, 1200 bls. sulphate, 200 tons; Pagel Horton & Co. Inc., Lionel, Gefle, 2500 bls. sulphite, 500 tons; Gottesman & Co. Inc., Bockenheim, Sweden, 5875 bls. wood pulp.

NEW LONDON IMPORTS

WEEK ENDING JANUARY 26, 1935

Price & Pierce, Ltd., Lionel, Wallvik, 3000 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING JANUARY 26, 1935

Johaneson Wales & Sparre, Inc., Wanja, Sundsvall, 1565 bls. sulphite, 283 tons; Johaneson Wales & Sparre, Inc., Wanja, Hernosand, 3600 bls. sulphite, 600 tons; Johaneson Wales & Sparre, Inc., Wanja, Hernosand, 600 bls. sulphate, 100 tons; ———, Wanja, Sundsvall, 300 bls. sulphate, 50 tons; ———, Wanja, Sundsvall, 375 bls. chemical pulp, 75 tons; Irving Trust Co., Wanja, Sundsvall, 150 bls. mechanical pulp, 25 tons; Perkins Goodwin & Co., Wanja, Sundsvall, 875 bls. sulphite, 175 tons; Bulkley Dunton & Co., Wanja, ———, 5125 bls. sulphite, 1041 tons; Elliott Addressing Machine Co., Noshiro Maru, Yokohama, 5 cs. paper; Meredith Linen Mills, Black Hawk, Antwerp, 78 bls. flax waste; D. M. Hicks, Inc., Black Hawk, Antwerp, 37 bls. paste; Union Trust Co., Exeter, Alexandria, 36 bls. rags; Atkinson Haserick & Co., Exeter, Genoa, 1 cs. paper; Parsons & Whittemore, Inc., Schwarzwald, ———, 375 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING JANUARY 26, 1935

E. J. Keller Co. Inc., Indep. Hall, ———, 110 bls. rags; M. Sone, Scanyork, Helsingfors, 300 bls. wood pulp; Gottesman & Co. Inc., Wido, Sweden, 650 bls. wood pulp; Globe Sanitary Rag Co., Noshiro Maru, Kobe, 43 bls. rags.

BALTIMORE IMPORTS

WEEK ENDING JANUARY 26, 1935

National City Bank, Cypria, Valencia, 432 bls. rags; Congoleum Nairn Co., Indep. Hall, Bordeaux, 558 bls. rags; National City Bank, Indep. Hall, St. Nazaire, 1506 bls. rags; ———, Noshiro Maru, Kobe, 800 bls. rags; Parsons & Whittemore, Inc., City of Havre, ——— 125 bls. wood pulp.

NORFOLK IMPORTS

WEEK ENDING JANUARY 26, 1935

N. Y. Trust Co., Cypria, Barcelona, 152 bls. bagging; ———, Cypria, Barcelona, 65 bls. bagging; N. Y. Trust Co., Cypria, Barcelona, 347 bls tares.

Paper Firms Lose Blue Eagle

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 30, 1935—NRA has announced that the following firms have lost their right to use of the Blue Eagle: Processed Papers, Inc., Camden, N. J., for failure to file statistical reports with the code authority for the cardboard division of the paper and pulp industry code; Keystone Carton Company, Sheppton, Pa., wage and hour provisions of the set up paper box industry code.

New England TAPPI to Meet

The next meeting of the New England Section of the Technical Association of the Pulp and Paper Industry will be held at the Nonotuck Hotel, Holyoke, Mass., Friday evening, February 15.

W. Boyd Campbell of the Forest Products Laboratories of Canada, will present a paper entitled "Fiber Structure and Its Influence in Paper Making."

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, January 30, 1935.

Despite the severe weather during the past week the local paper market continues fairly active. There are also numerous inquiries around for future account, some of which should materialize into good orders. Sales forces of the leading paper organizations generally express optimism. Prices are holding to schedule, in most instances.

The newsprint paper market is easier. Great disappointment is felt that all the manufacturers failed to follow the example of the International Paper Company in maintaining the recently announced new contract price, with the result that quotations have reverted to last year's levels, for the first six months of the year, at least.

Steadiness prevails in the fine paper market. Demand for book, bond, ledger and cover papers is well sustained. Prices are firm. Tissues are moving in fairly good volume. The coarse paper market is stronger and quotations on No. 1 northern and standard kraft have been advanced one-eighth of a cent per pound, with the exception of kraft made from southern pine.

Mechanical Pulp

The ground wood paper market is practically marking time. Demand for both domestic and imported mechanical pulp is mainly along routine lines. Production in North America and abroad is generally keyed to consumption and the statistical position of the industry is sound. Prices are holding to formerly quoted levels.

Chemical Pulp

Business in the chemical pulp market continues moderately active. All domestic and imported grades are steady to firm and there are reports of pressure from abroad to increase quotations. Kraft pulp is exhibiting a strong undertone, with offerings limited. The contract movement is fairly satisfactory for the time of year.

Old Rope and Bagging

The old rope market is fairly steady, although the prevailing demand for domestic and foreign old manila rope is light. Small mixed rope is moving slowly. Old rope prices remain unchanged. The bagging market is moderately active. Scrap and gunny bagging are marking time. Roofing bagging is firm. The price situation is considered satisfactory.

Rags

Conditions in the domestic rag market are improving to some extent. Demand for new cotton rags is fairly brisk. Several grades are attracting export attention, including No. 1 white shirt cuttings. Roofing grades are firmer. The imported rag market is still affected by the foreign exchange situation, which is again rather uncertain.

Waste Paper

The higher grades of paper stock are displaying strength. Demand for hard white envelope cuttings and hard and soft white shavings is well sustained. Board mill request for the lower grades is slightly better and sentiment in this section of the waste paper market is a trifle better than of late. Collections were retarded by the heavy snowfall.

Twine

Trading in the local twine market during the past week was quite active considering the inclement weather. The outlook for the future is fairly encouraging. Despite the usual keen competition for desirable orders prices are generally holding to formerly quoted levels and reports of shading are infrequent.

Paper Men at Employment Hearing

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 30, 1935.—Charles W. Boyce, secretary and Carl E. Whitney, counsel of the American Paper and Pulp Association, and H. W. Ellison, chairman of the Labor Committee of the Paper Industry Authority, are in Washington today as observers for the paper industry in connection with the NRA hearing on the employment provision of the code. No special statement will be made on behalf of the paper industry at the conference which will probably last all week, unless Roscoe Edlund of the consumers industries refers to paper in his general statement.

The conference was opened by S. Clay Williams, chairman of the NRA Board, who stated that all evidence presented orally or by brief would receive consideration by the Board. William Green, president of the American Federation of Labor, at the opening of the conference said that the NRA has achieved much, but it "has failed to make effective the more basic and the fundamental purposes of the program."

P. S. Fiske Sec. of Waxed Association

[FROM OUR REGULAR CORRESPONDENT]

Paul S. Fiske, sales manager of The Parker-Young Company, Boston, Mass., and for the past eighteen months general chairman of the Sulphite Paper Manufacturers Association, has been appointed secretary-treasurer of the American Waxed Paper Association, commencing January 28.

When the Sulphite Paper Manufacturers Association was organized in June 1933, after the passage of the NIRA, Mr. Fiske was elected general chairman. Mr. Fiske has been identified with the paper industry since 1912 when he joined the International Paper Company, leaving in 1915 to become sales manager of the Henry Paper Company, Lincoln, N. H. When this company was absorbed by the Parker-Young Company in 1917 he opened sales offices in Boston and has since continued as sales manager. During these years he has been closely identified with association work and has held responsible posts in various paper industry groups.

The American Waxed Paper Association is considered fortunate in acquiring the services of an executive of Mr. Fiske's character and ability.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, January 30, 1935.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45 per ton, in bulk; while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Steadiness prevails in the bleaching powder market. The contract movement is fairly heavy for the time of year. Prices remain firm at recently quoted levels. Bleaching powder is selling at from $1.90 to $2.15 per 100 pounds, in drums, at works.

CASEIN.—The casein market continues firm. Domestic standard ground is quoted at 11 and finely ground at 11¼ cents per pound; while Argentine standard ground is selling at 13½ and finely ground at 14 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda is moderately active. Shipments against contract are moving in good volume. Solid caustic soda is quoted at from $2.60 to $3.10; while the flake and ground are selling at from $3 to $3.05 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is marking time. Shipments against contract are moving regularly. Imported china clay is quoted at from $13.50 to $21 per ton, ship side; while domestic paper making clay is selling at from $6.50 to $12 per ton, at works.

CHLORINE.—Business in the chlorine market is rather quiet, although the industry is in a sound statistical position and the future outlook is bright. Chlorine is quoted at from $2 to $2.40 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is stronger. Paper making gum rosin is quoted at $4.85 and FF wood rosin at $4.60 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $2.71 per 100 pounds, in tank cars, at works.

SALT CAKE.—Paper mill demand for salt cake is fairly persistent. Prices continue firm. Salt cake is quoted at from $12 to $13 and chrome salt cake at from $11 to $12 per ton, at works. Imported salt cake is selling at from $12 to $13 per ton, on dock.

SODA ASH.—The soda ash market is exhibiting strength. Shipments against contract are going forward regularly. Prices continue steady. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.10; in bags, $1.40; and in barrels, $1.50.

STARCH.—Most of the business transacted in the starch market is along routine lines. The contract movement is normal. Prices are steady. Special paper making starch is quoted at $3.75 per 100 pounds, in bags; and at $3.84 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Conditions in the sulphate of alumina market are unchanged. Prices are holding to schedule. Commercial grades are quoted at from $1.35 to $1.50; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Trading in the talc market is irregular. Prices are holding to previously quoted levels, in most instances. Domestic talc is quoted at from $16 to $18 per ton, at eastern mines; while imported talc is selling at from $23 to $30 per ton, on dock.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	—
Bonds	6.00	@	—
Index	6.00	@	—
Writings—			
Extra Superfine	6.50	@	—
Superfine	6.25	@	—
Tub sized	5.75	@	—
Engine sized	5.50	@	—
Book, Cased—			
S. & S. C.	5.35	@	5.75
S. & S. C. Litho.	5.60	@	6.00
M. F.	5.10	@	5.50
Coated and Enamel	5.90	@	6.55
Coated Litho	5.90	@	6.55
Tissues—Per Ream—			
White No. 1	.82½	@	.85
White No. 2	.67½	@	—
Anti-Tarnish M. G. only	1.00	@	—
Colored	.85	@	—
Kraft	.70	@	—
Manila	.67½	@	.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	4.00	@	4.50
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.50	@	3.50
Glassine—			
Bleached	.11	@	—
Unbleached	.09	@	—

(The following Quotations are Delivered New York)

News, per ton			
Roll, contract	40.00	@	—
Rolls, spot	40.00	@	—
Sheets	45.00	@	—
Kraft—			
No. 1 Northern	4.12½	@	4.75
Standard	4.00	@	—
Southern	3.87½	@	—
Boards—per ton—			
News	40.00	@	45.00
Chip	37.50	@	40.00
Sgl. Mla. Ll. Chip	47.50	@	52.50
Jute Lined Chip	47.50	@	52.00
White Patent Coated	60.00	@	65.00
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	21.00	@	22.00
Dry	21.00	@	22.00
(F.o.b. Mill)			
No. 1 Domestic and Canadian	18.00	@	24.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.85	@	—*
Division 2	2.80	@	—*
Division 3	2.75	@	—*
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.25	@	—*
Other Than Easy Bleaching—			
Class 2. Higher Than Standard	2.20	@	—*
Class 3. Standard	2.15	@	—*
Class 4. Lower than Standard	2.10	@	—
(On Dock, Atlantic Ports)			
Kraft No. 1	1.65	@	1.75
Kraft No. 2	1.50	@	1.60
(F.o.b. Pulp Mill)			
Kraft Domestic	1.60	@	2.25
(Delivered)			
Soda Bleached	2.50	@	—

*Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	5.75	@	6.00
Silesias No. 1	3.75	@	4.00
New Unbleached	6.25	@	6.50
New Soft Blacks	3.00	@	3.25
Blue Overall	3.50	@	3.75
Fancy	2.50	@	2.75
Washables	1.75	@	2.00
Mixed Khaki Cuttings	3.00	@	3.25
O. D. Khaki Cuttings	3.75	@	4.00
Men's Corduroy	1.50	@	1.75
New Mixed Blacks	2.50	@	2.75

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	@	3.25
White, No. 2—			
Repacked	1.75	@	2.25
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.25	@	1.50
Black Stockings	2.50	@	3.00
Roofing Rags—			
No. 1	1.10	@	1.25
No. 2	.80	@	.85
No. 3	.70	@	.75
No. 4	.65	@	.70
No. 5A	.60	@	.65

Foreign Rags

New Rags

New Dark Cuttings	1.60	@	1.70
New Mixed Cuttings	1.75	@	1.85
New Light Silesias	3.75	@	4.00
Light Flannelettes	3.75	@	4.00
Unbleached Cuttings	6.50	@	6.75
New White Cuttings	6.50	@	6.75
New Light Oxfords	3.25	@	3.50
New Light Prints	2.75	@	3.00

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	1.75	@	1.85
French Blue Linens	2.30	@	2.40
German Blue Linens	2.15	@	2.25
German Blue Cottons	1.70	@	1.80
Checks and Blues	1.30	@	1.40
Linsey Garments	1.40	@	1.60
Dark Cottons	1.00	@	1.10
Old Shopperies	.95	@	1.00
New Shopperies	.90	@	1.00
French Blues	1.70	@	1.80

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.40	@	1.50
Wool Tares, light	1.20	@	1.30
Wool Tares, heavy	1.20	@	1.30
Bright Bagging	1.15	@	1.25
Manila Rope—			
Foreign	1.85	@	2.00
Domestic	1.75	@	2.00
Small Mixed Rope	1.10	@	1.35
New Burlap Cut	2.00	@	2.25
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.70	@	2.80
Ordinary Hard White No. 1	2.15	@	2.25
Hard White No. 2	1.95	@	2.05
Soft White No. 1	1.85	@	1.95
Flat Stock—			
Stitchless	.65	@	.75
Over issue Mag.	.65	@	.75
Solid Flat Book	.55	@	.60
Crumpled No. 1	.40	@	.45
Solid Book Ledger	1.50	@	1.65
Ledger Stock	1.00	@	1.10
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.70	@	1.80
New Cuttings	1.35	@	1.45
Print	Nominal		
Bogus Wrapper	.40	@	.50
Container	Nominal		
Old Kraft Machine—			
Compressed bales	1.10	@	1.20
News—			
No. 1 White News	1.20	@	1.30
Strictly Overissue	.65	@	.70
Strictly Folded	.25	@	.30
No. 1 Mixed Paper	.15	@	.17½

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Svanö, Sweden

Twines
(F. o. b. Mill)

Coarse Polished—			
India	.11¼	@	.13¼
Belg. White Hemp	.12½	@	.15½
India Compress	.11¾	@	.12¼
Fine Polished—			
Fine India	.16	@	.20
Special	.16	@	.18
B. C.	.25½	@	.27½
Unpolished—			
Box	.10	@	.10½
Paper Makers	.07	@	.11½
Tube Rope	.08	@	.13½
Wall Paper	.09	@	.12½
Wrapping	.12	@	.17
Special	.12	@	—
Soft Fiber Rope	.10¼	@	.10¾

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.12	@	.50
Water Marked Sulphite Bond	.06¾	@	.11
Sulphite Bond	.05½	@	.11
Superfine Writing	.18	@	.24
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¾
No 1 S.&S.C. Book	.06¾	@	.07¾
No 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04¾	@	.05¼
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¾	@	.03¾
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04¾	@	.06¼
Sulphite Screenings	.03	@	.03¾
Manila Tissue	.05¾	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News per ton—			
Rolls, contract	41.00	@	—
Sheets, open	46.00	@	48.50
Boards, per ton—			
Plain Chip	46.50	@	—
Solid News	50.00	@	—
Manila Lined Chip	55.00	@	—
Patent coated	65.00	@	—
Container Lined—			
85 Test, per 1000 sq. ft.			1.70
100 Test, per 1000 sq. ft.			1.85

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.70	@	2.00
No. 1 Hard White	1.40	@	1.65
No. 1 Soft White	1.25	@	1.50
Ledger & Writings	.70	@	.80
Solid Books	.60	@	.70
Blanks	1.00	@	1.05
Krafts	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	90	@	1.00
Print Manila	.40	@	.50
Overissue News	.40	@	.45
Old Newspapers—			
No. 1	.30	@	.35
Mixed Papers—			
No. 1	.15	@	.20
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(Delivered Philadelphia)

Bonds	.05-9/10	@	.38
Ledgers	.06 9/10	@	.40
Writings—			
Fine No. 3	.05	@	.06
Superfine	.10	@	.18
Extra Fine	.15	@	.20
Fine	.15	@	.25
Fine, No. 2	.10	@	.25
Book, M. F.	.05¾	@	.06¾
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06½	@	.09
Coated Lithograph	.06¾	@	.08½
Label	.07	@	.11
No. 1 Jute Manila	6.25	@	—
Manila Sul., No. 1	5.25	@	—
Manila No. 2	3.00	@	—
No. 1 Kraft	5.00	@	—
Southern Kraft	4.75	@	—
Common Bogus	.03	@	.04½
News Print Rolls	40.00	@	—
Straw Board	40.00	@	45.00
News Board	40.00	@	—
Chip Board	37.50	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.23

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.03½	@	.04
New White, No. 2	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02½	@	.03
New Unbleached	05	@	.05½
Washable, No. 1	01½	@	.02
Blue Overall	.03½	@	.04
Cottons—According to grades—			
Washable, No. 2	.02½	@	.03
New Blue	.01½	@	.03
Fancy	.01½	@	.03
New Black Soft	.02	@	.04
New Light Seconds	.01½	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.04
No. 2 Mixed	.03	@	.04
Corduroy	.02	@	.03
New Canvas	.03½	@	.04½
New Black Mixed	.02½	@	.03½

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.50
Miscellaneous	1.75	@	2.25
M. G.	3.00	@	3.75
Thirds and Blues—			
Miscellaneous	1.00	@	1.50
Repacked	1.50	@	2.00
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.85

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	1.75
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.25	@	2.30
No. 2 Hard White	1.90	@	2.00
No. 1 Soft White	1.80	@	1.85
No. 2 Soft White	1.25	@	1.30
No. 1 Mixed	—	@	.75
Solid Ledger Stock	1.50	@	1.60
Writing Paper	1.00	@	1.10
No. 1 Books, heavy	.55	@	.60
No. 1 New Manila	1.35	@	1.40
Print Manila	.50	@	.60
Container Manila	.45	@	.50
Old Kraft	1.00	@	—
No. 1 Mixed Paper	.20	@	—
Straw Board Chip	.20	@	—
Binders Board Chip	.20	@	—
Corrugated Board	.40	@	—
Overissue News	.50	@	—
Old Newspapers	.30	@	—

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.07¾	@	.11
Rag Content	.12	@	.40
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¼
Manila, Sul. No 2	.03¾	@	.04½
No. 1 Kraft	.04¾	@	.05
No. 2 Kraft	.03½	@	.04½
(F. o. b. Boston)			
Southern Kraft	.03⅞	@	.04½

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	@	.02¼
(Delivered New England points)			
News Print Rolls	39.50	@	—
Straw Board, rolls	.009	—	@35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	40.00	@	45.00
Chip Board	37.50	@	40.00
Chip Board (Creasing)	37.50	@	40.00
Single Manila Lined Chip	47.50	@	52.50
Single White, Patent Coated News Board (Bender)	55.00	@	65.00
Wood Pulp Board	70.00	@	75.00
Binder Boards (Standard Grade)	67.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.00	@	2.20
No. 1 Soft White	1.75	@	1.90
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.75	@	—
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.95	@	1.05
No. 1 Books, heavy	.55	@	.65
No. 1 Books, light	.50	@	.60
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.50	@	.55
White Blank News	1.20	@	1.25
No. 1 Kraft	.85	@	.95
No. 1 Mixed Papers	.12½	@	.20
Print Manila	.40	@	.45
Overissue News	.45	@	.50
Old Newspapers	.22½	@	.30
Box Board Chips	..	@	.25
Corrugated boxes	.25	@	.32½
Screening Wrappers	.45	@	.55

Bagging
(F. o. b. Boston)

Manila Rope—			
Foreign	1.75	@	1.90
Domestic	1.90	@	2.00
Transmission Rope	.90	@	1.00
Mixed Strings	.17½	@	.30
Jute Rope	1.35	@	1.40
Jute Carpet Threads	.65	@	.70
Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.15	@	1.20
Bleachery Burlap	4.00	@	4.50
Scrap Burlap	1.05	@	1.10
Scrap Sisal	1.00	@	1.10
Scrap Sisal for Shredding	1.10	@	1.25
Wool Tares, heavy	1.25	@	1.30
New Burlap Cuttings	1.45	@	1.50
Australian Wool Pouches	2.00	@	2.25
Heavy Baling Bagging	1.40	@	1.50
Paper Mill Bagging	.90	@	1.10
Bagging No. 2	.50	@	.55

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.01¾	@	.02
New White No. 1.	.05½	@	.06
New White No. 2.	.03½	@	.04
Silesias No. 1	.04	@	—
New Black Silesias	.02½	@	.03
New Unbleached	.05½	@	.06
Blue Cheviot	—	@	4.65
Fancy	.0185	@	.0195
Washable	.0165	@	.0170
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soft	04	@	04
Khaki Cuttings	.03¾	@	.03¾
O. D. Khaki	.03	@	.03¼
Corduroy	.01¾	@	.02
New Canvas	—	@	05
B.V.D. Cuttings	—	@	.06¾

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	
White No. 1—			
Repacked	—	@	3.00
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	2.00	@	2.75
Miscellaneous	2.00	@	2.25
Twos and Blues	1.25	@	1.50
Thirds and Blues			
Repacked	2.00	@	2.75
Miscellaneous	2.00	@	2.25
Black Stockings	2.50	@	3.00
Roofing Stock			
No. 1	.85	@	.90
No. 2	.75	@	.80
No. 3	.60	@	.65

Foreign Rags
(F. o. b. Boston)

Dark Cottons	1.00	@	1.00
New White Shirt Cuttings	5.50	@	6.00
Dutch Blues	2.00	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	1.55	@	1.60
Old Linsey Garments	1.25	@	1.35

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¼	@	—
No. 2 Colored	.09	@	.10
Ledgers (sulphite)			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.20	@	—
No. 3 M. F. (Carloads)	5.70	@	—
No. 4 M. F. (carloads)	4.75	@	—
No. 1 S. C. (carloads)	6.65	½	—
No. 3 S. C. (carloads)	6.20	@	—
No. 4 S. C. (carloads)	5.20	@	—
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.25	@	—
White Wrap	2.22½	@	—
"B" Manila	4.75	@	—
No. 1 Manila	5.25	@	—
Fiber	5.25	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.25	@	—

(F.O.B. Cars Toronto)

News, per ton—			
Rolls (contract)	39.50	@	—
Sheets	42.00	@	—

Pulp
(F. o. b. Mill)

Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	50.00	@	55.00
Sulphate	50.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.30
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	1.00
Light and Crumpled Book Stock	.80	@	.90
Ledgers and Writings	1.00	@	1.05
Manilas—			
New Manila Cut	1.25	@	1.50
Printed Manilas	.70	@	.60
Kraft	1.25	@	1.30
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.60	@	—
No. 1 Mixed Paper	.50	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.06	@	.06¼
Fancy Shirt Cuttings	.02¼	@	.02¾

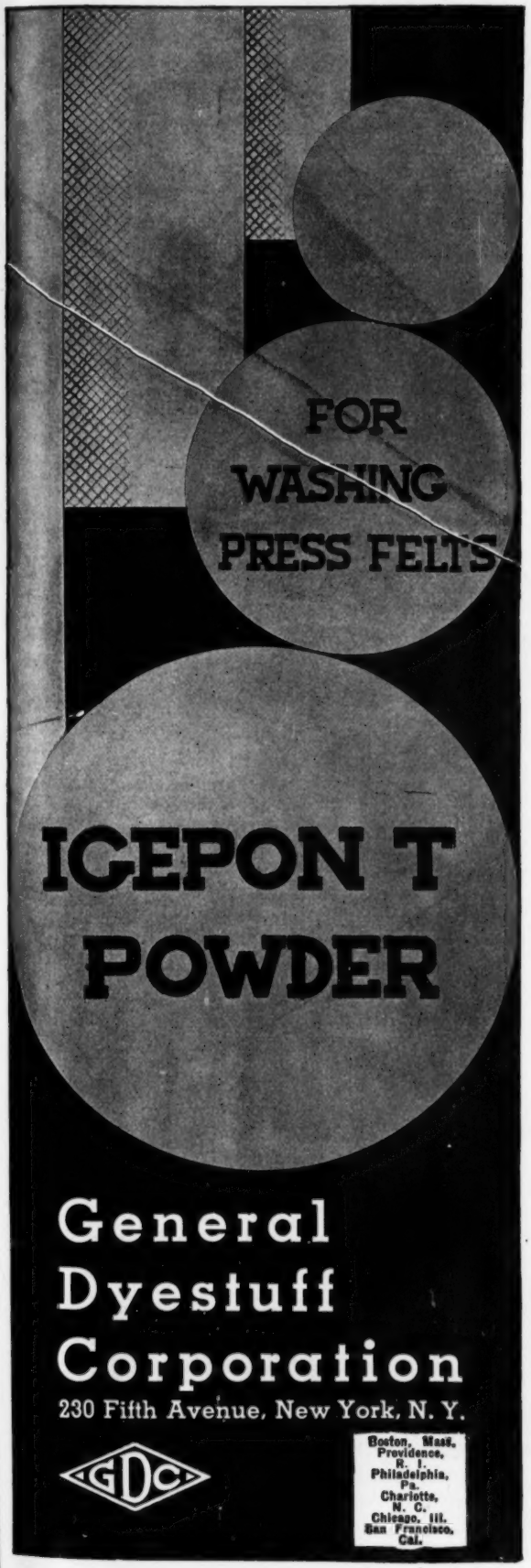

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TABLE OF CONTENTS

Paper Men Oppose Reciprocity 15
Early Pennsylvania Mills Described 16
Loans for Paper Mills in South 17
Quebec Threatens Action Over News 18
Lake St. John Power and Paper Co. 18
Tomahawk Pulp and Paper May Reopen 21
Paper Institute Appointments 21
Boston Market Fairly Active 22
Schroon River Paper Co. Busy 22
Chicago Paper Demand Expands 24
G. R. Brazeau Addresses Salesmen 24
Crystal Waxing Co. Elects Officers 24
Toronto Market Shows More Strength 25
Newsprint Mills to Make Rayon 25
Fort William Paper Mill 25
Commercial Standard for Binders Board 26
Cleveland Fine Paper Exhibit 26
Logging Camps in Adirondacks Busy 26
Obituary 27
Construction News 28
Doane Carton Expands 29
Indianapolis Paper Market Steady 29
Editorial 30
Paper Mills in Alabama 31
Harvey Suit is Settled 31
Weekly Production Ratio Report 31
Hearing on Cotton Tax 31
Technical Section
Management Under the NRA 33
Lake States TAPPI to Meet 33
Some Factors Influencing the Life of Fourdrinier Wires 34
Evaluation of the Printing Quality of Paper 41
Heat Requirements for Sulphite Pulping 44
To Make Toilet Paper Survey 46
Glatfelter Co. Holds Territorial Meetings 46
Imports of Paper and Paper Stock 47
New York Market Review 49
Miscellaneous Markets 50
Market Quotations 50

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Want and For Sale Advertisements, 54, 55

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